

MIND MAPPING - A NEW DIMENSION IN THINKING AND NOTE-TAKING

For centuries the human race has noted and recorded for the following purposes: memory; communication; problem solving and analysis; creative thinking; and summarisation, etc. The techniques that have been used to do this include sentences, lists, lines, words, analysis, logic, linearity, numbers, and monotonic (one colour) usage.

Good though some of these systems seemed, they have all used what you know to be the dominantly 'left cortical' thought modalities. When you begin to use these necessary elements in conjunction with rhythm, rhyme, form, dimension, colour, space and imagination, your skills in all mental areas will increase significantly and your mind will begin to reflect its true majesty.

How often have you seen 'the diligent student' hanging on every word that his teacher or professor utters, and faithfully recording each gem in his notebook?! It is a fairly common sight, and one that brings a number of negative consequences.

First the person who is intent on getting everything down is like the reader who does not preview - he inevitably fails to see the forest (the general flow of argument) for the trees.

Second, a continuing involvement with getting things down prevents objective and on-going critical analysis and appreciation of the subject matter. All too often note-taking by-passes the mind altogether.

And third, the volume of notes taken in this manner tends to become so enormous, especially when combined with added notes from books, that when it comes to 'revising', the student finds he has to do almost the complete task again.

Proper note-taking is not a slavish following of what has been said or what has been written, but is a selective process which should minimise the volume of words taken down, and

maximise the amount remembered from those words.

To achieve this we make use of the 'Key-Word' concept. A Key-Word is a word that encapsulates a multitude of meanings in as small a unit as possible. When that word is triggered, the meanings spray free. It can be effectively represented by the diagram below.

Selecting Key-Words is not difficult. The first stage is to eliminate all the unnecessary surrounding language, so that if you came across the following statement in a science text: 'the speed of light has now been determined to be 186,000 miles per second' you would not write the whole sentence down but would summarise it as follows: 'light's speed = 186,000 m.p.s.'.

It is important to remember when making your notes with key-words that the Key-Words *must* trigger the right kind of remembering. In this respect words like 'beautiful', and 'horrifying', while being picturesque, are too general. They have many other meanings which might have nothing to do with the particular point you wish to remember.

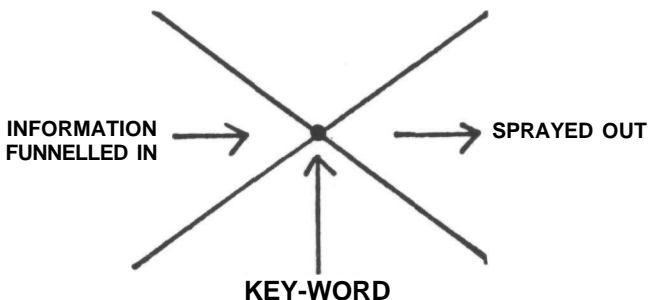


Fig. 9 How key-words work in assisting note-taking and memory

Further, a Key-Word should be one that you find personally satisfying and not one which you think somebody else might think is good. In many cases Key-Words need not be taken directly from the content of the lecture or the material being read. A word that you choose yourself and which summarises somebody else's words, is preferable.

If you practise Key-Word note-taking effectively you will be amazed at how much more information you can get into a given space.

The Mind Map — A New Dimension in Note-Taking

A Mind Map draws on all your mental skills: the Associative and Imagination skills from your memory; the words, numbers, lists, sequences, logic and analysis from your left cortex; the colour, imagery, dimension, rhythm, day-dreaming, Gestalt (whole picture) and spacial awareness abilities of the right side of your cortex; the power of your eye to perceive and assimilate; the power of your hand, with increasing skill, to duplicate what your eye has seen; and the power of your whole brain to organise, store, and recall that which it has learnt.

In Mind Map notes, instead of taking down what you wish to remember in the normal sentence or list-like fashion, you place an image in the centre of your note page (to help your concentration and memory) and then branch out in an organised fashion around that image, using Key-Words and Key Images. As you continue to build up the Mind Map, your brain creates an organised and integrated total map of the intellectual territory you are exploring.

The rules for a Mind Map are as follows:

1. A coloured image in the centre.
2. Main ideas branch off the centre.
3. Main ideas should be in larger letters than secondary ideas.
4. Words - always one word per line. Each word has an enormous number of associations, and this rule allows each one more freedom to link to other associations in your brain.
5. Words should always be printed (either upper or lower, or a combination of upper and lower cases).
6. Words should always be printed *on* the lines (this gives your brain a clearer image to remember).
7. Lines should be connected (this helps your memory to associate). The connected lines should be the same length as the word for efficiency of both association and space.
8. Use as many images as possible (this helps develop a whole-brained approach, as well as making it much easier for your memory; a picture *is*, in this context, worth a thousand words).
9. Use dimension wherever possible (things outstanding are

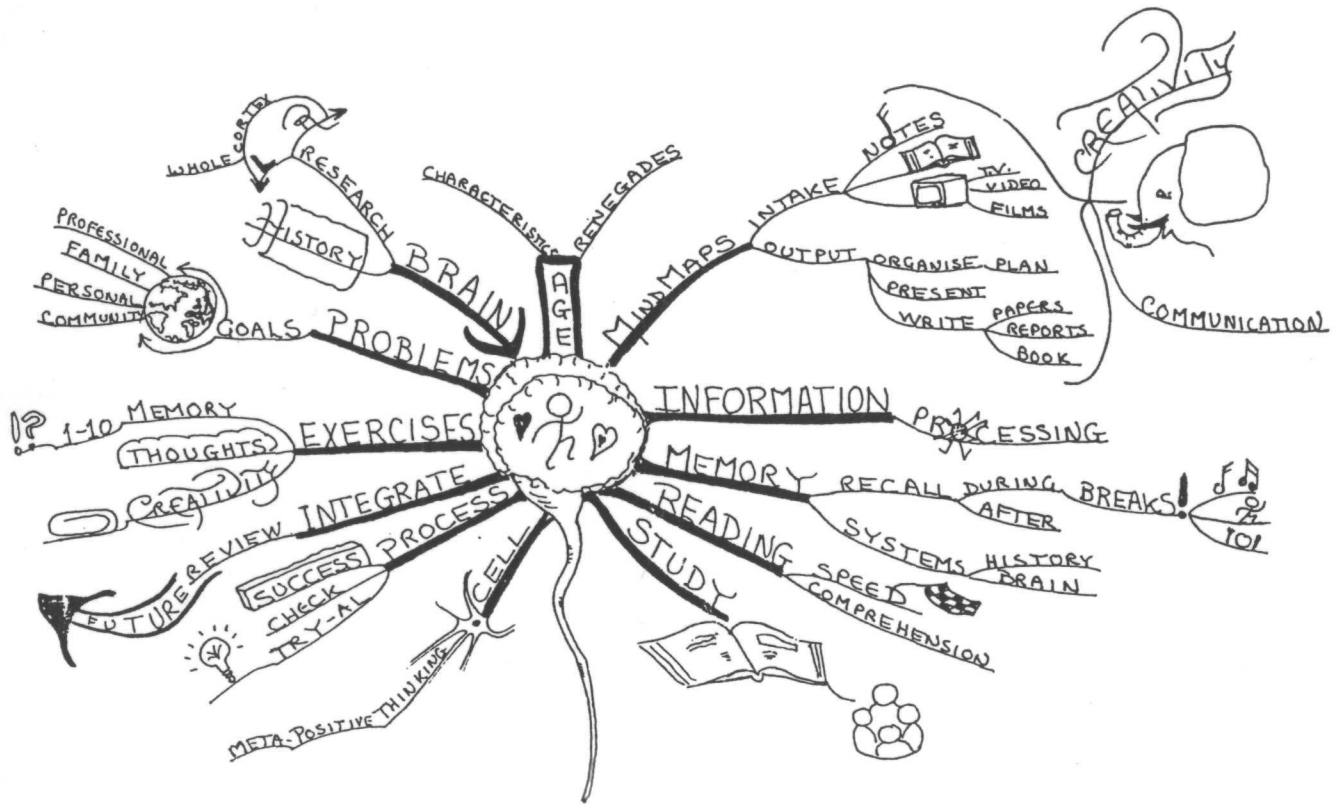


Fig 10 A Mind Map by a company director, summarising the Brain Training and Mind Mapping Course. The central image refers to the integration of the brain and the body. The branches off the central image summarise the major elements of the course. Images, rather than words, provide succinct memory aids. This Mind Map was used both as a summary and review tool. It was also used as a means of presenting to other members of the company what had been gained during the course.

- more easily remembered).
10. Use numbers or codes or put things in order, or show connections.
 11. For coding and connecting use:
 - a. Arrows
 - b. Symbols
 - c. Numbers
 - d. Letters
 - e. Images
 - f. Colours
 - g. Dimension
 - h. Outlining

On page 109 is a Mind Map summarising a three-day Brain Training and Mind Mapping Course. The Mind Map was made by a father who was also a company director. He used the same Mind Map to summarise the course for himself, and to explain the course to his wife, children and business colleagues.

The central image refers to the integration of the brain and the body. The branches, clockwise from 'exercises' at 9 o'clock, summarise the major elements of the course.

Images, rather than words, provide succinct memory aids.

The Mind Map note of this three day course, as you can see, can be useful not only as a noted summary of all that was dealt with, but could also be used as the notes for the speech itself.

In this situation the Mind Map becomes the 'note from your own brain' which then allows you to communicate to others, thus completing the Speed and Range Reading cycle.

As an interesting exercise in the power of the Mind Map technique, try 'reading' in detail the Mind Map on the Brain Training and Mind Mapping Course, to see how comprehensive a summary/understanding you can obtain from this one page note.

Now that you have learnt the Mind Mapping technique, it will be useful for you to go back over the Self Tests in Chapters 1, 3, 7, 9 and 10. Continue to extract the Key-Words from them, and to make Mind Maps of each essay. In this way you will be reviewing your speed reading skills, developing your note taking and Mind Mapping skills, and establish-

ing basic knowledge foundations in the fields of the brain, psychology, science, history and music.

As you continue through *Speed Reading*, make it a practice, after you have tested yourself on the Self Tests, to review them, underlining key words and concepts, and subsequently to Mind Map each article.

As a matter of interest finish this day's reading by thumbing through some of your old notes from school or other sources, observing how much was completely unnecessary, and how much time you could have saved first in writing them down, and second in reading them back. Many people find that only as little as 10% was necessary.

For a full explanation of the Mind Mapping Technique see *Use Your Head* by the author.

Personal Notes

4.

Noting

A: Key words

Overview

- **Exercise key words; standard responses**
- **Key words and concepts - creative and recall**
- **Memory - a comparison between standard note and key word noting**
- **Transition from advanced key word note taking to advanced Mind Map key word note taking**

Exercise **and** discussion

Imagine that your hobby is reading short stories, that you read at least five a day, and that you keep notes so that you will not forget any of them. Imagine also that in order to ensure a proper recall of each story you use a card filing system. For each story you have one card for the title and author, and a card for every paragraph. On each of these paragraph cards you enter a main and a secondary key word or phrase. The key words/phrases you take either directly from the story or make up yourself because they summarise particularly well.

Imagine further that your ten thousandth story is *Kusa-Hibari* by Lafcadio Hearne, and that you have prepared the title-and-author card.

Now read the story on page 73, and for the purpose of this exercise enter a key recall word or phrase for both the main and secondary idea for the first five paragraphs only, in the space provided on page 76.

Kusa-Hibari*Lafcadio Hearne*

His cage is exactly two Japanese inches high and one inch and a half wide: its tiny wooden door, turning upon a pivot, will scarcely admit the tip of my little finger. But he has plenty of room in that cage - room to walk, and jump, and fly, for he is so small that you must look very carefully through the brown-gauze sides of it in order to catch a glimpse of him. I have always to turn the cage round and round, several times, in a good light, before I can discover his whereabouts, and then I usually find him resting in one of the upper corners - clinging, upside down, to his ceiling of gauze.

Imagine a cricket about the size of an ordinary mosquito - with a pair of antennae much longer than his own body, and so fine that you can distinguish them only against the light. Kusa-Hibari, or 'Grass-Lark' is the Japanese name of him; and he is worth in the market exactly twelve cents: that is to say, very much more than his weight in gold. Twelve cents for such a gnat-like thing!... By day he sleeps or meditates, except while occupied with the slice of fresh egg-plant or cucumber which must be poked into his cage every morning... to keep him clean and well fed is somewhat troublesome: could you see him, you would think it absurd to take any pains for the sake of a creature so ridiculously small.

But always at sunset the infinitesimal soul of him awakens: then the room begins to fill with a delicate and ghostly music of indescribable sweetness - a thin, silvery rippling and trilling as of tiniest electric bells. As the darkness deepens, the sound becomes sweeter - sometimes swelling till the whole house seems to vibrate with the elfish resonance - sometimes thinning down into the faintest imaginable thread of a voice. But loud or low, it keeps a penetrating quality that is weird... All night the atomy thus sings: he ceases only when the temple bell proclaims the hour of dawn.

Now this tiny song is a song of love - vague love of the unseen and unknown. It is quite impossible that he should ever have seen or known, in this present existence of his. Not even his ancestors, for many generations back, could have known anything of the night-life of the fields, or the amorous Value of song.

They were born of eggs hatched in a jar of clay, in the shop of some insect-merchant: and they dwelt thereafter only in cages. But he sings the song of his race as it was sung a myriad years ago, and as faultlessly as if he understood the exact significance of every note. Of course he did not learn the song. It is a song of organic memory - deep, dim memory of other quintillions of lives, when the ghost of him shrilled at night from the dewy grasses of the hills. Then that song brought him love - and death. He has forgotten all about death: but he remembers the love. And therefore he sings now - for the bride that will never come.

So that his longing is unconsciously retrospective: he cries to the dust of the past - he calls to the silence and the gods for the return of time . . . Human lovers do very much the same thing without knowing it. They call their illusion an Ideal: and their Ideal is, after all, a mere shadowing of race-experience, a phantom of organic memory. The living present has very little to do with it . . . Perhaps this atom also has an ideal, or at least the rudiment of an ideal; but, in any event, the tiny desire must utter its plaint in vain.

The fault is not altogether mine. I had been warned that if the creature were mated, he would cease to sing and would speedily die. But, night after night, the plaintive, sweet, unanswered trilling touched me like a reproach - became at last an obsession, an affliction, a torment of conscience; and I tried to buy a female. It was too late in the season; there were no more kusa-hibari for sale, - either males or females. The insect-merchant laughed and said, 'He ought to have died about the twentieth day of the ninth month.' (It was already the second day of the tenth month.) But the insect-merchant did not know that I have a good stove in my study, and keep the temperature at above 75°F. Wherefore my grass-lark still sings at the close of the eleventh month, and I hope to keep him alive until the Period of Greatest Cold. However, the rest of his generation are probably dead: neither for love nor money could I now find him a mate. And were I to set him free in order that he might make the search for himself, he could not possibly live through a single night, even if fortunate enough to escape by day the multitude of his natural enemies in the garden - ants, centipedes, and ghastly earth-spiders.

Last evening - the twenty-ninth of the eleventh month - an odd feeling came to me as I sat at my desk: a sense of emptiness in the room. Then I became aware that my grass-lark was silent, contrary to his wont. I went to the silent cage, and found him lying dead beside a dried-up lump of egg-plant as gray and hard as a stone. Evidently he had not been fed for three or four days; but only the night before his death he had been singing wonderfully - so that I foolishly imagined him to be more than usually contented. My student, Aki, who loves insects, used to feed him; but Aki had gone into the country for a week's holiday, and the duty of caring for the grass-lark had developed upon Hana, the housemaid. She is not sympathetic, Hana the housemaid. She says that she did not forget the mite - but there was no more egg-plant. And she had never thought of substituting a slice of onion or of cucumber! . . . I spoke words of reproof to Hana the housemaid, and she dutifully expressed contrition. But the fairy-music had stopped: and the stillness reproaches; and the room is cold, in spite of the stove.

Absurd!... I have made a good girl unhappy because of an insect half the size of a barley-grain! The quenching of that infinitesimal life troubled me more than I could have believed possible Of course, the mere habit of thinking about a creature's wants - even the wants of a cricket - may create, by insensible degrees, an imaginative interest, an attachment of which one becomes conscious only when the relation is broken. Besides, I had felt so much, in the hush of the night, the charm of the delicate voice - telling of one minute existence dependent upon my will and selfish pleasure, as upon the favour of a god - telling me also that the atom of ghost in the tiny cage, and the atom of ghost within myself, were forever but one and the same in the deeps of the Vast of being And then to think of the little creature hungering and thirsting, night after night and day after day, while the thoughts of his guardian deity were turned to the weaving of dreams!... How bravely, nevertheless, he sang on to the very end - an atrocious end, for he had eaten his own legs!... May the gods forgive us all - especially Hana the housemaid!

Yet, after all, to devour one's own legs for hunger is not the worst that can happen to a being cursed with the gift of song. There are human crickets who must eat their own hearts in order to sing.

Key words or phrases for main and secondary ideas from Kusa-Hibari

	main	secondary
paragraph 1	_____	_____
paragraph 2	_____	_____
paragraph 3	_____	_____
paragraph 4	_____	_____
paragraph 5	_____	_____

Below you will find sample key words and phrases from the notes of students who have previously done this exercise. Briefly compare and contrast these with your own ideas.

Students' suggested key words and phrases

	main	secondary
paragraph 1	his cage wooden door ceiling of gauze small insect	two Japanese inches wooden floor plenty of room discover whereabouts

paragraph 2	cricket weight in gold antennae Kusa-Hibari	Grass-Lark twelve cents market gnatlike
paragraph 3	sleep clean and well fed occupied absurd	fresh cucumber pains meditation small
paragraph 4	penetrating music electric bells soul	silvery rippling house vibrating penetrating hour of dawn
paragraph 5	Love amorous the hills Death	night life insect merchant significance love and death

In class situations instructors then circled one word from each section:

		secondary
paragraph 1	wooden door	discover whereabouts
1	weight in gold	market
3	occupied	pains
4	penetrating	hour of dawn
5	love	night-life

Students were then asked to explain why, in the context of the exercise, these words and phrases and not others had been selected. Answers usually included the following: 'good image words', 'imaginative', 'descriptive', 'appropriate', 'good for remembering', and 'evocative', etc.

Only one student in fifty realised why the instructors had chosen these words: in the context of the exercise the series chosen was disastrous.

To understand why, it is necessary to imagine a time some years after the story has been read when you are going to look at the notes again for recall purposes. Imagine that some friends have played a prank, taking out the title cards of some of your stories and challenging you to remember the titles and authors. You would have no idea to start with to which story your cards referred, and would have to rely solely on them to give you back the correct images.

With the key words at the bottom of page 77, you would probably be forced to link them in the following way: 'wooden door', a general phrase, would gain a mystery-story air when you read 'discover whereabouts'. The next two keys 'weight in gold' and 'market' would confirm this, adding a further touch of intrigue suggesting a criminal activity. The next three key words, 'occupied' 'pains' and 'penetrating' might lead you to assume that one of the characters, perhaps the hero, was personally in difficulty, adding further tension to the ongoing plot as the 'hour of dawn', obviously an important and suspense-filled moment in the story, approached. The final two keys, 'love' and 'night-life' would add a romantic or risqué touch to the whole affair, encouraging you to thumb quickly through the remaining key words in search of further adventures and climaxes! You would have created an interesting new story, but would not remember the original one.

Words which seemed quite good at the time have not, for some reason, proved adequate for recall. To explain why, it is necessary to discuss the difference between key recall words and key creative words, and the way in which they interact after a period of time has passed.

A key recall word or phrase is one which funnels into itself a wide range of special images, and which, when it is triggered, funnels back the same images. It will tend to be a strong noun or verb, on occasion being surrounded by additional key adjectives or adverbs. *See fig 26.*

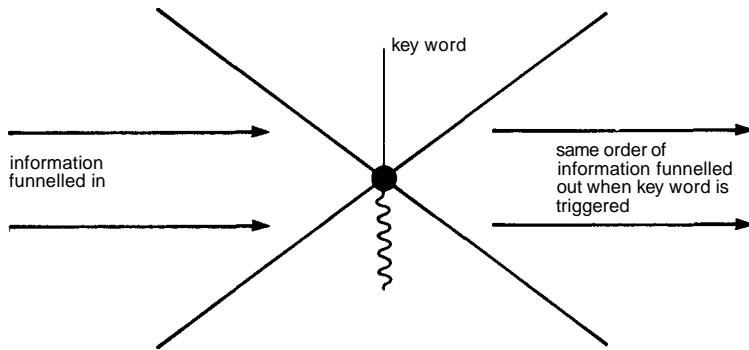


Fig 26 Diagram representing key recall word. See text on opposite page.

A creative word is one which is particularly evocative and image-forming, but which is far more general than the more directed key recall word. Words like 'ooze' and 'bizarre' are especially evocative but do not necessarily bring back a specific image. *See fig 27.*

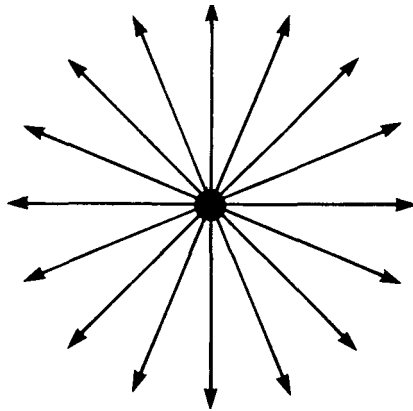


Fig 27 A creative word sprays out associations in all directions. See text this page.

Apart from understanding the difference between creative and recall words, it is also necessary to understand the nature of words themselves as well as the nature of the brain which uses them.

Every word is 'multi-ordinate', which simply means that each word is like a little centre on which there are many, many little hooks. Each hook can attach to other words to give both words in the new pair slightly different meanings. For example the word 'run' can be hooked quite differently in 'run like hell' and 'her stocking has a run in it'.

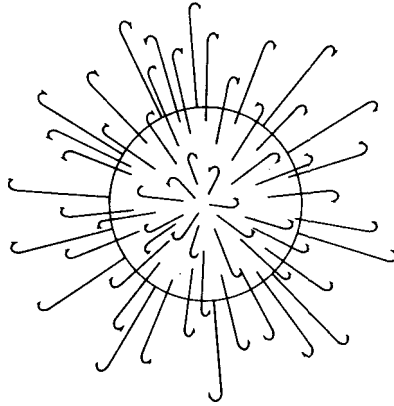


Fig 28 Each word is multi-ordinate, meaning that it has a large number of 'hooks'. Each hook, when it attaches to another word, changes the meaning of the word. Think, for example, of how the word 'run' changes in different phrase contexts. *See text pages 79 and 80*

In addition to the multi-ordinate nature of words, each brain is also different from each other brain. As shown in the first chapter, the number of connections a brain can make within itself is almost limitless. Each individual also experiences a very different life from each other individual (even if two people are enjoying the 'same experience' together they are in very different worlds: A is enjoying the experience with B as a major part of it, and B is enjoying the experience with A as a major part of it). Similarly the associations that each person will have for any word will be different from everybody else's. Even a simple word like 'leaf will produce a different series of images for each person who reads or hears it. A person whose favourite colour is green might imagine the general greenness of leaves; someone whose favourite colour is brown, the beauty of autumn; a person who had been injured falling out of a tree, the feeling of fear; a

gardener, the different emotions connected with the pleasure of seeing leaves grow and the thought of having to rake them all up when they had fallen, etc. One could go on for ever and still not satisfy the range of associations that you who are reading this book might have when *you* think of leaves.

As well as the unique way in which the mind sees its personal images, each brain is also, by nature, both creative and sense-organising. It will tend to 'tell itself interesting and entertaining stories' as it does for example when we day- or night-dream.

The reason for the failure of the recall and creative words selected from *Kusa-Hibari* can now clearly be seen. When each of the multi-ordinate words or phrases was approached, the mind automatically picked the connecting hooks which were most obvious, most image-producing, or the most sense-making. The mind was consequently led down a path that was more creative than recall based, and a story was constructed that was interesting, but hardly useful for remembering.

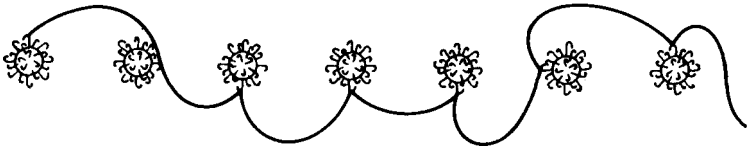


Fig29 Showing how mind can follow the 'Strong connections' in a series of key words. See text this page.

Key recall words would have forced the mind to make the proper links in the right direction, enabling it to recreate the story even if for all other intentional purposes it had been forgotten.

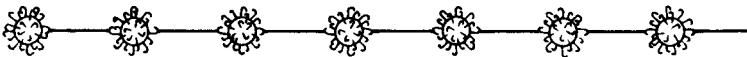


Fig30 Direction of correct associations when proper recall key words have been used. See text this page.

Key versus standard notes

The main body of a person's recalling is of this key concept nature. It is not, as is often assumed, a word-for-word verbatim process. When people describe books they have read or places they have been to, they do not start to 're-read' from memory. They give key concept overviews outlining the main characters, settings, events and add descriptive detail. Similarly the single key word or phrase will bring back whole ranges of experience and sensation. Think for example of the range of images that enter your mind when you read the word 'child'.

How, then, does acceptance of these facts about key recall affect our attitude toward the structure of note taking?

Because we have become so used to speaking and writing words, we have mistakenly assumed that normal sentence structure is the best way to remember verbal images and ideas. Thus the majority of students and even graduates have taken notes in a normal literary fashion similar to the example of a university student whose notes were rated 'good' by his professor. *See facing page.*

Our new knowledge of key concepts and recall has shown that in this type of notes 90 per cent of the words are not necessary for recall purposes. This frighteningly high figure becomes even more frightening when a closer look is taken at what happens with standard sentence notes:

- 1 Time is wasted recording words which have no bearing on memory (estimated waste - 90%).
- 2 Time is wasted re-reading the same unnecessary words (estimated waste - 90%).
- 3 Time is wasted searching for the words which *are* key, for they are usually not distinguished by any marks and thus blend in with other non-recall words.
- 4 The connections between key words are interrupted by words that separate them. We know that memory works by association and any interference by non recall words will make the connections less strong.
- 5 The key words are separated in time by intervening words: after one key word or phrase has been read it will take at least

July 2, 1962. Psychology 206

Book James Coleman Personality Dynamics
 Shaffer, Elderly Psych. of Adjustment.

Course Outline

I. Biological Determinants of Behavior the genetic approach to behavior, environment.
 II. Social Determinants of Behavior. See etc.
 III. Psychological Determinants. approaches to personality dynamics
 a) Psychoanalysis - Freud, Jung, Adler.
 b) in therapy.
 c) Perceptual Cognitive approach and its approach to psychology and social change.

BIOLOGICAL DETERM.

Hereditary predisposes - open organism to the environment - it is impossible to separate genetics from environment in analyzing behavior - even growth is not wholly genetic.
 There is no way of copying hereditary heredity or environment affect certain facets of the individual.

→ also - Shaffer - Elderly Genetics.

Research Methods for separating causes for heredity.

① Study family lines to look for similarities - family biology - identical - many will have had same environment.
 ② Study of twins as far the best method
 (i) compare identical twins (monozygotic) vs fraternal twins (dizygotic); non-similar heredity.
 (ii) as - twin reared method - use only identical twins, bring one at raised in some home, the other reared apart.
 ③ Hold environment constant to see what will happen to levels of diff. inheritance - placing both in foster home, and comparing the diff in their homes.

INTERLUENCE with social and learning

A. '57 - Mussen - compared Binet T.A. of identical twins in same home, with the other twin in separate home. a correlation of .67 between equal pairs; good influence strong, the correlation was .91. All influence of environment.

Fig 31 An example of traditionally 'good' university student's notes.
 See text on opposite page.

a few seconds to get to the next. The longer the time between connections, the less chance there will be of proper connection being made.

- 6 The key words are separated in space by their distance from each other on the page. As with the point made about time, the greater the distance between the words, the less chance of there being a proper connection.

You are advised to practise key word and phrase selection from any previous notes made during periods of study. It will also be helpful at this point for you to summarise this chapter in key note form.

In addition, reconsider key and creative words in the light of the information in the chapter on Memory, especially the section dealing with mnemonic techniques. Similarly the memory chapter itself can be reconsidered in the light of this chapter, with a similar emphasis on the relationship and similarities between mnemonic systems and key and creative concepts.

The review graph is another important consideration. Review is made much easier when notes are in key form, because less time is expended, and because the recall itself will be superior and more complete. Any weak linkages will also be cemented more firmly in the early stages.

Finally, linkages between key words and concepts should always be emphasised and where possible simple lists and lines of key words should be avoided. In the following chapter advanced methods of key word linking and patterning will be explained in full.

Personal Notes

B: Mind maps for recall and creative thinking

Overview

- Exercise
- Linear history of speech and print
- Contrast: the structure of the brain
- Advanced note taking and mapping techniques

Exercise

In the space below, and starting immediately after having reached the end of this paragraph, prepare a half-hour speech on the topic of Space Travel. Allow no more than five minutes for the task, whether or not you have finished. This exercise will be referred to later in the chapter, before which time the problems experienced in performing the task should also be noted here or in a notebook.

Space travel notes

Problems experienced

Linear history of speech and print

For the last few hundred years it has been popularly thought that man's mind worked in a linear or list-like manner. This belief was held primarily because of the increasing reliance on our two main methods of communication, speech and print.

In speech we are restricted, by the nature of time and space, to speaking and hearing one word at a time. Speech was thus seen as a linear or line-like process between people. *See fig 32.*

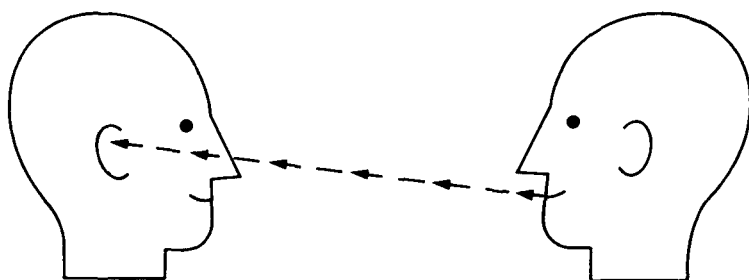


Fig 32 Speech has traditionally been seen as a list-like affair. See text page 87.

Print was seen as even more linear. Not only was the individual forced to take in units of print in consecutive order, but print was laid out on the page in a series of lines or rows.

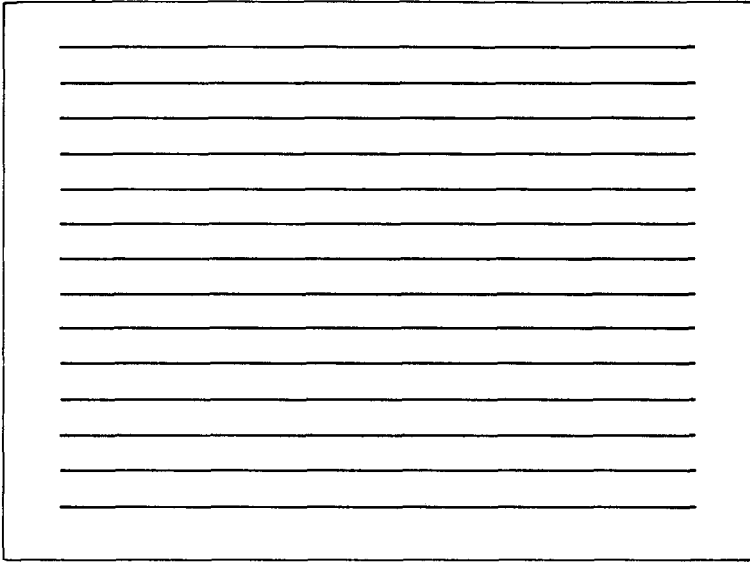
This linear emphasis overflowed into normal writing or notetaking procedures. Virtually everyone was (and still is) trained in school to take notes in sentences or vertical lists. (Most readers will probably have prepared their half-hour speech in one of these two ways, as shown in fig33). The acceptance of this way of thinking is so long-standing that little has been done to contradict it.

However, recent evidence shows the brain to be far more multi-dimensional and pattern making, suggesting that in the speech/print arguments there must be fundamental flaws.

The argument which says that the brain functions linearly because of the speech patterns it has evolved fails to consider, as do the supporters for the absolute nature of IQ tests, the nature of the organism. It is easy to point out that when words travel from one person to another they necessarily do so in a line, but this is not really the point. More to the point is, the question: 'How does the brain which is speaking, and the brain which is receiving the words, deal with them *internally*}'

The answer is that the brain is most certainly *not* dealing with them in simple lists and lines. You can verify this by thinking of the way in which your own thought processes work while you are speaking to someone else. You will observe that although a single line of words is coming out, a continuing and enormously complex process of sorting and selecting is taking place in your

A Normal line structure - sentenced-based



B Standard list structure - order-of-importance-based

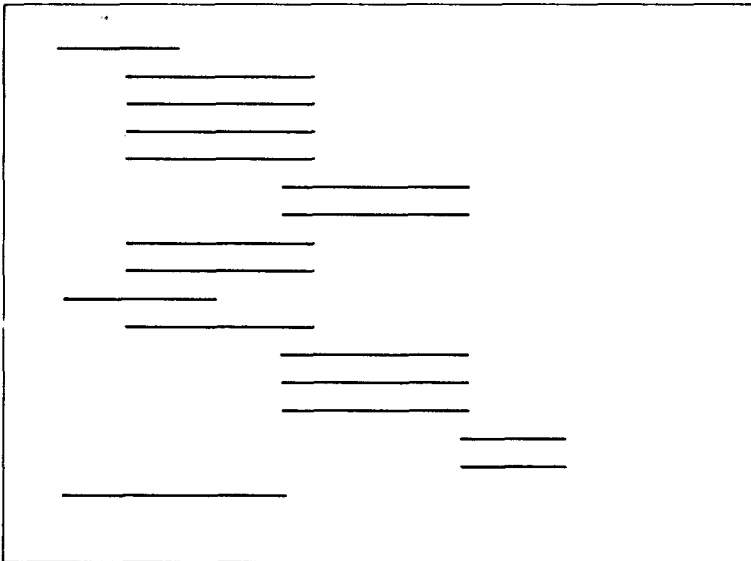


Fig33 Standard forms of 'good' or 'neat' notes.

mind throughout the conversation. Whole networks of words and ideas are being juggled and interlinked in order to communicate a certain meaning to the listener.

Similarly the listener is not simply observing a long list of words like someone sucking up spaghetti. He is receiving each word in the context of the words that surround it. At the same time he is also giving the multi-ordinate nature of each word his own special interpretation as dictated by the structure of his personal information patterns and will be analysing, coding and criticising throughout the process.

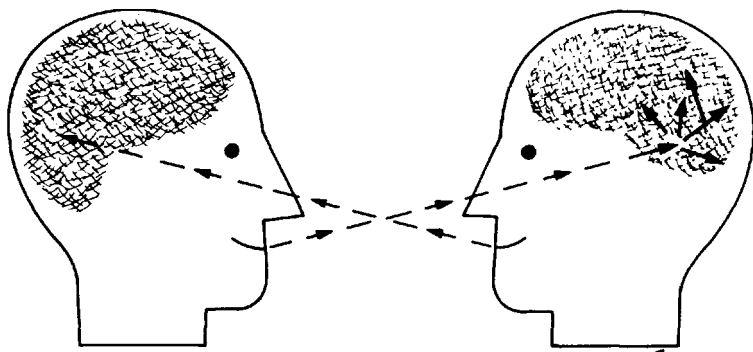


Fig34 It is the network inside the mind, and not the simple order of word presentation, which is more important to an understanding of the way we relate to words. See text pages 88-90.

You may have noticed people suddenly reacting to words you liked or thought were harmless. They react this way because the associations they have for these words are different from your own. Knowing this will help you to understand more clearly the nature of conversations, disagreements and misunderstandings.

The argument for print is also weak. Despite the fact that we are trained to read units of information one after each other, that these are presented in lines and that we therefore write and note in lines, such linear presentation is not necessary for understanding, and in many instances is a disadvantage.

The mind is perfectly capable of taking in information which is non-linear. In its day-to-day life it does this nearly all the time, observing all those things which surround it which include common non-linear forms of print: photographs, illustration,

diagrams, etc. It is only our society's enormous reliance on linear information which has obscured the issue.

The brain's non-linear character is further confirmed by recent biochemical physiological and psychological research. Each area of research is discovering that the organism is not only non-linear but is so complex and interlinked as to defy any final description.

The brain and advanced noting

If the brain is to relate to information most efficiently the information must be structured in such a way as to 'slot in' as easily as possible. It follows that if the brain works primarily with key concepts in an interlinked and integrated manner, our notes and our word relations should in many instances be structured in this way rather than in traditional 'lines'.

Rather than starting from the top and working down in sentences or lists, one should start from the centre or main idea and branch out as dictated by the individual ideas and general form of the central theme.

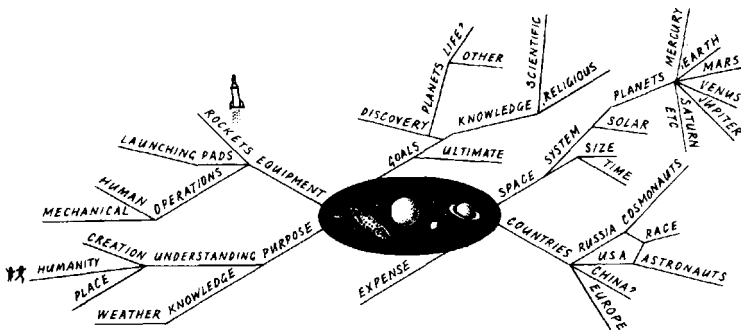


Fig35 Initial ideas jotted around a centre. See text this page.

A mind map such as that outlined in fig 35 has a number of advantages over the linear form of note taking.

- 1 The centre or main idea is more clearly defined.
- 2 The relative importance of each idea is clearly indicated.

More important ideas will be nearer the centre and less important ideas will be near the edge.

- 3 The links between the key concepts will be immediately recognisable because of their proximity and connection.
- 4 As a result of the above, recall and review will be both more effective and more rapid.
- 5 The nature of the structure allows for the easy addition of new information without messy scratching out or squeezing in, etc.
- 6 Each map made will look and be different from each other map. This will aid recall.
- 7 In the more creative areas of note making such as essay preparations etc, the open-ended nature of the map will enable the brain to make new connections far more readily.

In connection with these points, and especially with the last one, you should now do an exercise similar to your space travel speech notes at the beginning of this chapter, but this time using a mind map rather than the more linear methods.

In the space provided on page 94 branch out in the manner indicated in figure 35 in preparation for a speech on 'Myself.

While doing this exercise a number of things should be noted.

- 1 Words should be printed in capitals. For reading-back purposes a printed map gives a more photographic, more immediate, and more comprehensive feed-back. The little extra time that it takes to print is amply made up for in the time saved when reading back.
- 2 The printed words should be on lines, and each line should be connected to other lines. This is to guarantee that the mind map has basic structure.
- 3 Words should be in 'units', i.e. one word per line. This leaves each word more free hooks and gives note-taking more freedom and flexibility
- 4 In creative efforts of this nature the mind should be left as 'free' as possible. Any 'thinking' about where things should go or whether they should be included will simply slow down the

process. The idea is to recall everything your mind thinks of around the central idea. As your mind will generate ideas faster than you can write, there should be almost no pause - if you do pause you will probably notice your pen or pencil dithering over the page. The moment you notice this get it back down and carry on. Do not worry about order or organisation as this will in many cases take care of itself. If it does not, a final ordering can be completed at the end of the exercise.

Start the exercise now.

Although this first attempt at mapping may have been a little difficult, you will probably have noticed that the experience is quite different from that of the first exercise, and that the problems too may have been quite different.

Problems often noted in the first exercise include;

order	organisation
logical sequence	time distribution
beginning	emphasis of ideas
ending	mental blocking

These problems arise because people are attempting to select the main headings and ideas one after the other, and are attempting to put them into order as they go - they are trying to order a structure of speech without having considered all the information available. This will inevitably lead to confusion and the problems noted, for new information which turns up after the first few items might suddenly alter the whole outlook on the subject. With a linear approach this type of happening is disruptive, but with the map approach it is simply part of the overall process, and can be handled properly.

Another disadvantage of the list-like method is that it operates against the way in which the brain works. Each time an idea is thought of it is put on the list and forgotten while a new idea is searched for. This means that all the multi-ordinate and associative possibilities of each word are cut off and boxed away while the mind wanders around in search of another new idea.



Myself

With the map approach each idea is left as a totally open possibility, so that the map grows organically and increasingly, rather than being stifled.

You might find it interesting to compare your efforts so far with the efforts of three school children. *See figs 36 to 38.*

Figure 36, page 102 shows the normal writing of a fourteen-year-old boy who was described as reasonably bright, but messy, confused, and mentally disorganised. The example of his linear writing represents his 'best notes' and explains clearly why he was described as he was. The mind map of English which he completed in five minutes shows almost completely the reverse, suggesting that we can often misjudge a child by the method in which we require him to express himself.

Figure 37, page 103 is the mind map of a boy who twice failed O level Economics and who was described by the teacher as having enormous thinking and learning problems combined with an almost total lack of knowledge of his subject. The map which also was completed in five minutes, shows quite the reverse.

Figure 38, page 104 is a mind map done by an A Level grammar school girl on pure Mathematics. When this map was shown to a Professor of Mathematics he estimated that it was done by a University Honours student and that it probably took two days to complete. In fact it took the girl only twenty minutes. The map enabled her to display an extraordinary creativity in a subject which is normally considered dry, dull and oppressive. It could have been even better if each line had contained only 'units' of words instead of phrases. Her use of form and shape to augment the words will give an indication of the diversity possible in these structures. The following chapter extends this idea.

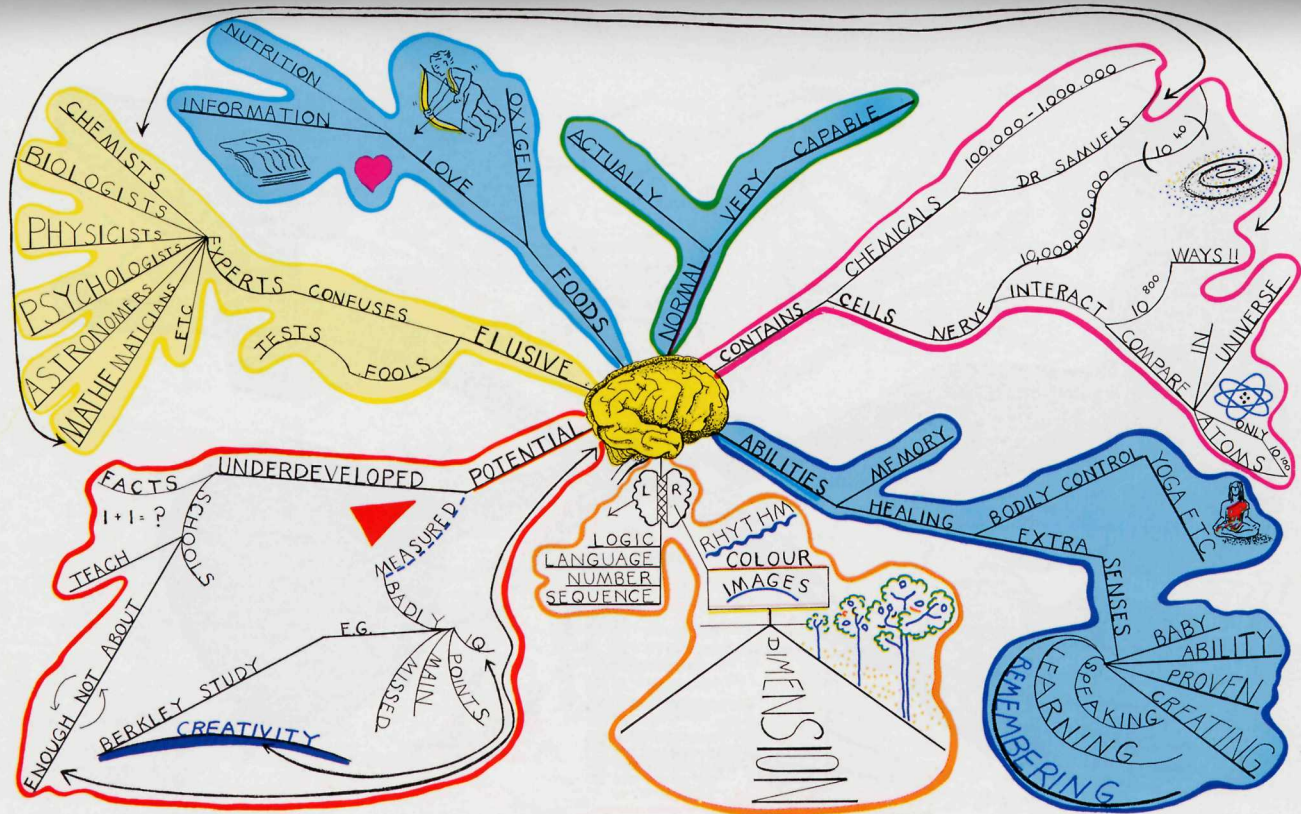
The mind maps on pages 97-100 represent a new method for noting.

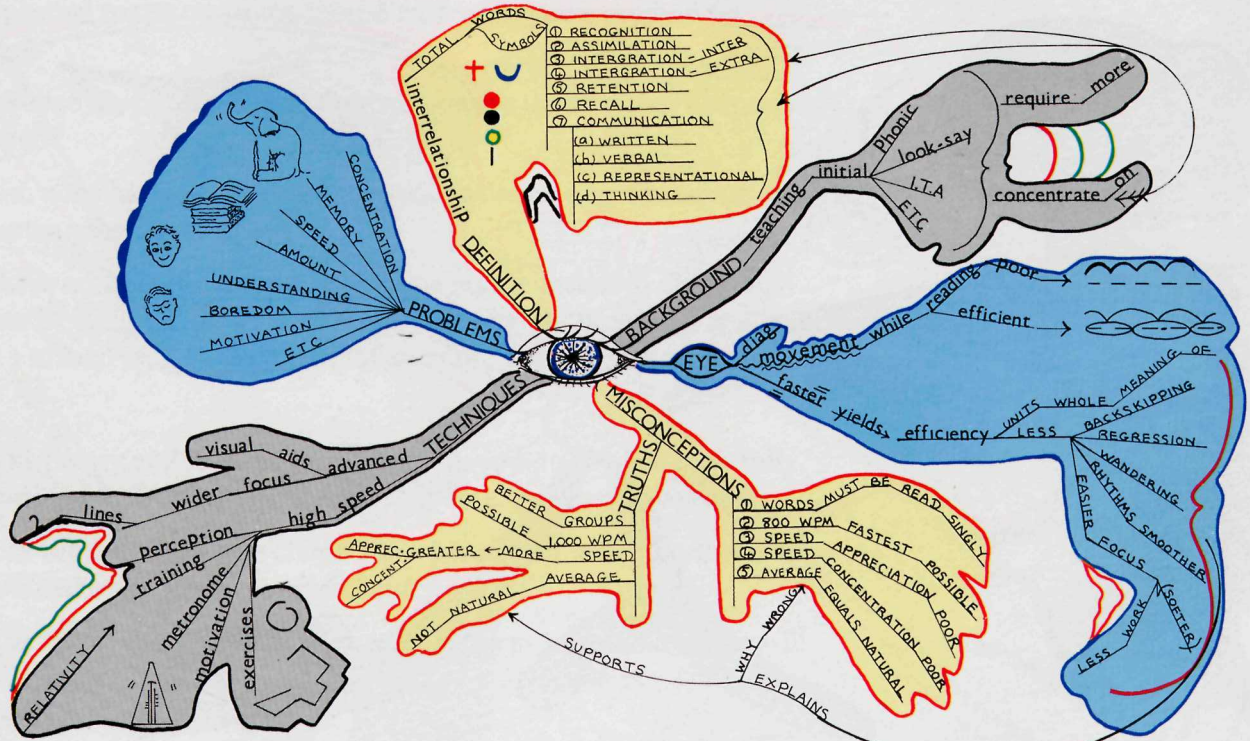
There are four of them, and they summarise the first four chapters of the book.

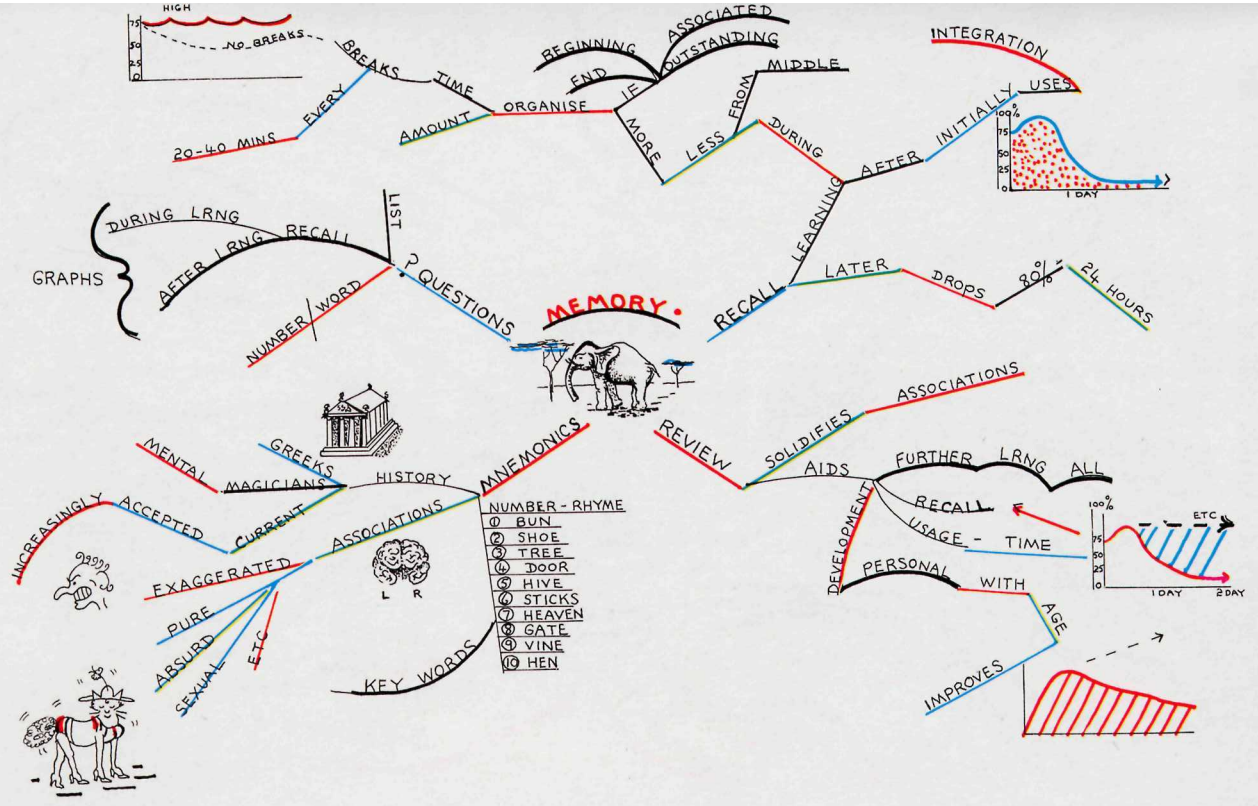
A fifth page has been left blank for you to create a mind map of Chapter 5 for yourself.

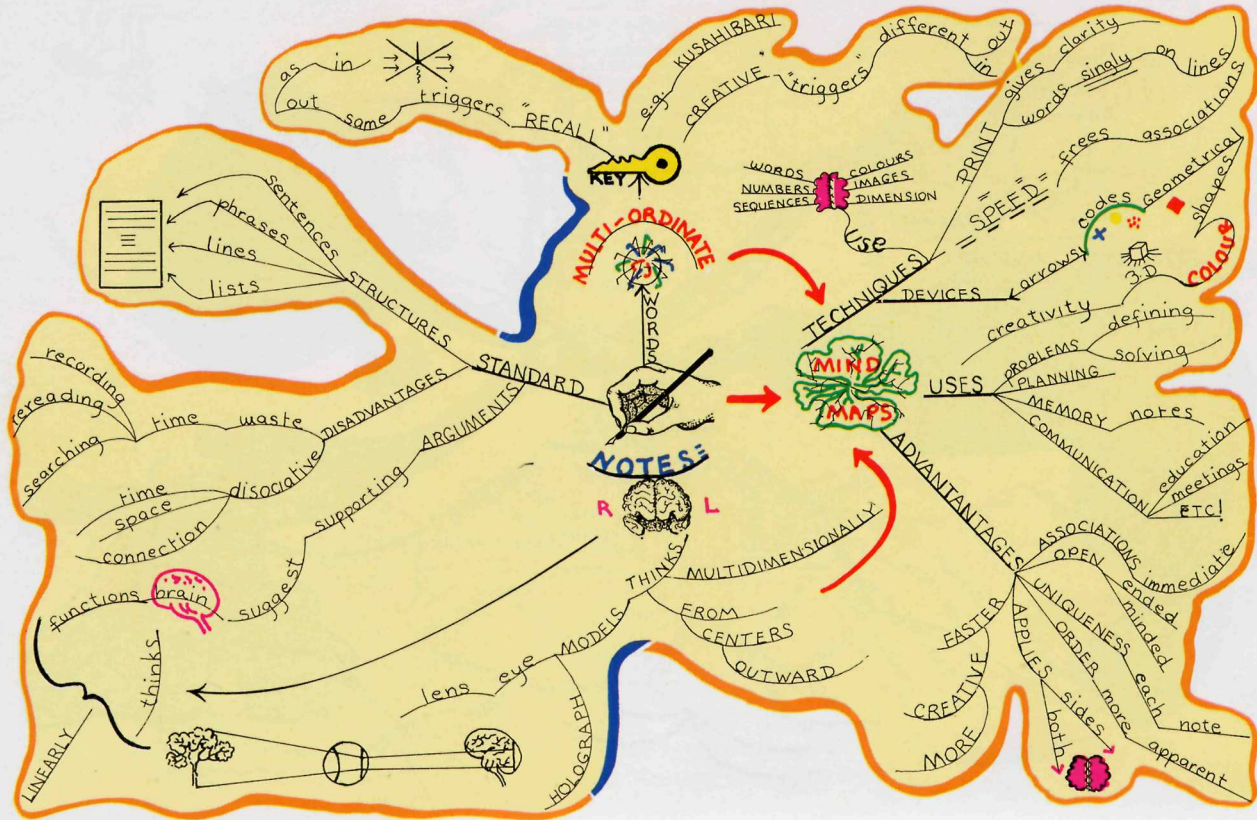
In these mind maps key words and images are linked to each other around a main centre (in these cases, the overall theme of a chapter), and a mental picture is built up of an entire thought structure.

- The theory and method for making these patterned notes is fully outlined in sections B and C of chapter 4, starting on page 86.
- Use the notes for each chapter as a preview of what is to come; they will make the reading of the chapter easier.
- After finishing a chapter, look at its patterns once again. This will serve as a good review, and will help you to remember what you have read.









Draw your own mind map of chapter five

- 7) SETTING Time + places in which the novel is situated
- 8) IMAGERY Des Kind of images the author uses to describe (usually by simile or metaphor)
- 9) SYMBOLISM One thing stands for another
The witcher in Macbeth signifying evil

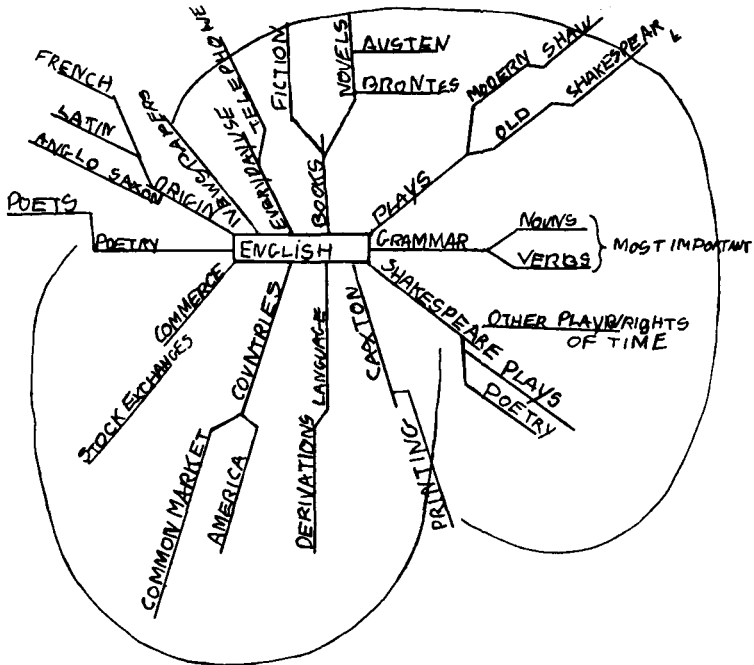


Fig36 The 'best notes' in linear writing of a 14 year-old boy, and his mind map notes on English. See text page 95.

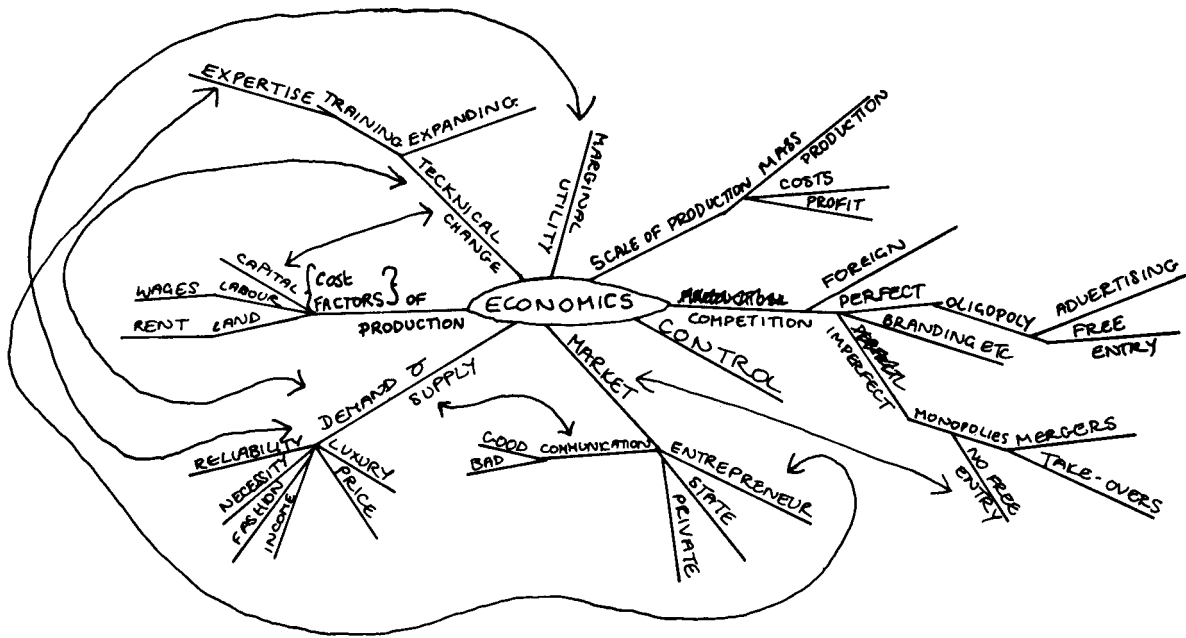


Fig 37 Mind map by a boy who twice failed O level Economics. See text page 95.

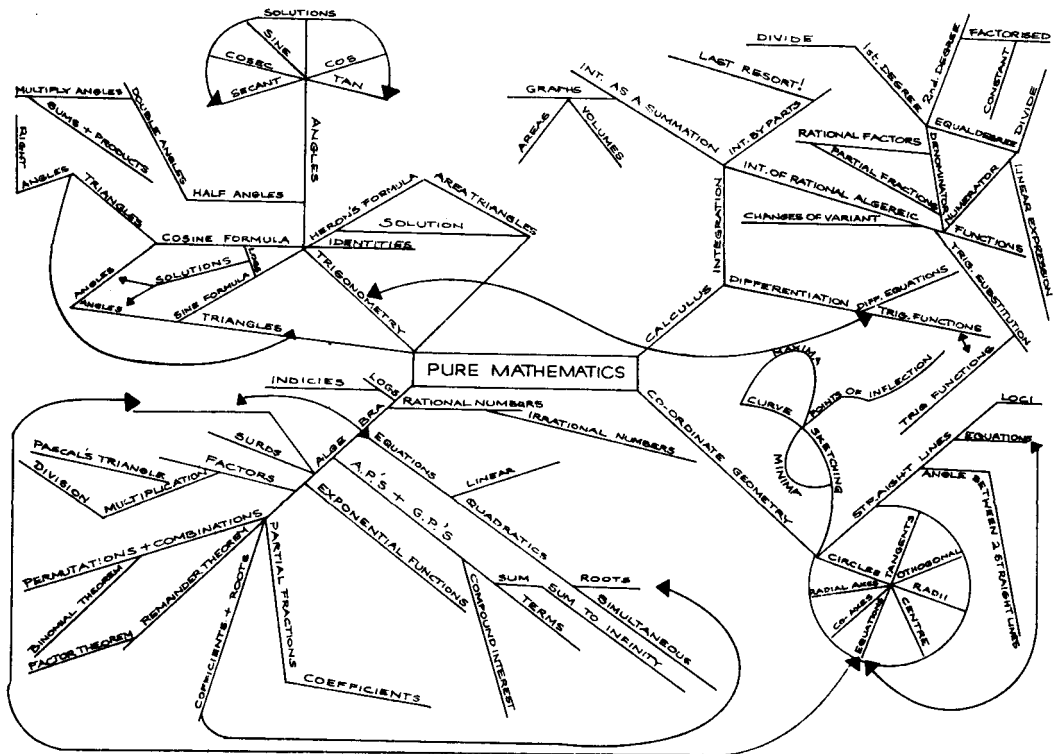


Fig 38 Mind map by an A level grammar school girl on pure Mathematics. See [textpage95](#).

Personal Notes

C: Mind maps - advanced methods and uses

Overview

- Models for the brain
- Technology and new insights into ourselves
- The left and right brain and mind mapping
- Advanced techniques
- Wider application of patterning techniques

Models of perception - brain - mind

As recently as the 1950s the camera provided the model for our perception and mental imaging: the lens of the camera corresponded to the lens of the eye, and the photographic plate to the brain itself. *See fig 39.* This conception was held for some time but was very inadequate. You can confirm this inadequacy by doing the following exercises: in the way that one normally does when drowsily day-dreaming, close your eyes and imagine your favourite object. Having clearly registered the image on your inner eye, perform the following activities.

- Rotate it in front of you
- Look at it from the top
- Look at it from underneath
- Change its colour at least three times
- Move it away as if it were seen from a long distance
- Bring it close again
- Make it gigantic
- Make it tiny
- Totally change the shape of it
- Make it disappear
- Bring it back

These feats can be performed without much difficulty; the apparatus and machinery of a camera could not even begin to perform them.

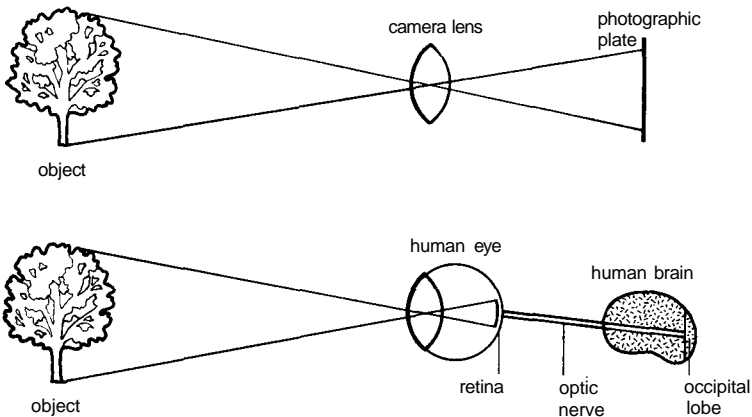


Fig39 Contrary to earlier thought the brain operates in a much more complex manner than the camera. *See text this page.*

Modern technology

Recent developments in more refined technology have fortunately given us a much better analogy: the hologram.

In this technique, an especially concentrated light or laser beam is split into two. One half of the ray is directed to the plate, while the other half is bounced off the image and then directed back to the other half of the ray. The special holographic plate records the millions of fragments into which the rays shatter when they collide. When this plate is held up in front of laser beams directed at special angles towards it, the original image is recreated. Amazingly, it is not recreated as a flat picture on the plate, but is perfectly duplicated as a three-dimensional ghost object that hangs in space. If the object is looked at from above, below or the side, it is seen in exactly the same way as the original object would be seen.

Even more amazingly, if the original holographic plate is rotated through 90 degrees, as many as 90 images can be recorded on the same plate with no interference.

And to add still further to the extraordinary nature of this new development, if the plate is taken and smashed to smithereens with a hammer, each particle of the shattered plate will, when it is placed in front of the specially direct lasers, still produce the complete three-dimensional ghost.

The holograph thus becomes a far more reasonable model than the camera for the way in which our brain works, and begins to give us some idea of just how complex an organism it is that we carry about with us.

But even this extremely refined piece of technology falls far short of the unique capabilities of the brain. The holograph certainly approximates more closely the three-dimensional nature of our imaginations, but its storage capacity is puny compared to the millions of images that our brains can call up at an instant's notice, and randomly. The holograph is also static. It cannot perform any of the directional exercises of the kind described on pages 107 and 108 which the brain finds so easy and yet which must involve the most unimaginably intricate machinery. And even if the holograph were able to accomplish all this, it would

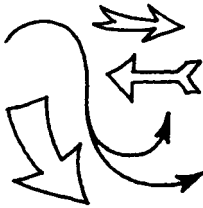
not be able to do what our minds can: to see its own self, with eyes closed, performing the operations!

The above gives considerable cause for thought, and even our most advanced sciences have as yet made little progress in this most interesting area of current research.

Advanced mind maps

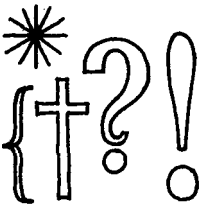
Observing that the brain handles information better if the information is designed to 'slot in', and observing also the information from this chapter about the dimensional nature of the mind, it follows that notes which are themselves more 'holographic' and creative will be far more readily understood, appreciated and recalled.

There are many devices we can use to make such notes:



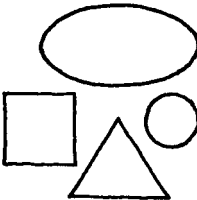
arrows

These can be used to show how concepts which appear on different parts of a pattern are connected. The arrow can be single or multi-headed and can show backward and forward directions.



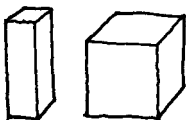
codes

Asterisks, exclamation marks, crosses and question marks as well as many other indicators can be used next to words to show connections or other 'dimensions'.



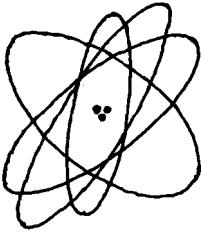
geometrical shapes

Squares, oblongs, circles and ellipses etc ___ can be used to mark areas or words which are similar in nature - for example triangles might be used to show areas of possible solution in a problem-solving pattern. Geometrical shapes can also be used to show order of importance. Some people, for example, prefer to use a square always for their main centre, oblongs for the ideas near the centre, triangles for ideas of next importance, and so on.



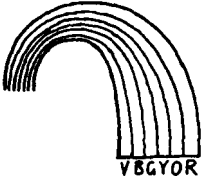
artistic three dimension

Each of the geometrical shapes mentioned, and many others, can be given perspective. For example, making a square into a cube. The ideas printed in these shapes will thus 'stand off the page'.



creativity/images

Creativity can be combined with the use of dimension by making aspects of the pattern fit the topic. One man, for example, when doing a pattern on atomic physics, used the nucleus of an atom and the electrons that surrounded it, as the centre for his pattern.



colour

Colour is particularly useful as a memory and creative aid. It can be used, like arrows, to show how concepts which appear on different parts of the pattern are connected. It can also be used to mark off the boundaries between major areas of a pattern.

Mind Maps and the Left and Right Brain.

At this point it is useful to consider how recent research into the brain adds strength to the points raised so far. In light of the fact, as already outlined, that the brain handles information better if the information is designed to 'slot in', consider the left and right brain research of Roger Sperry and Robert Ornstein. This research *alone* would lead you to conclude that a note taking and thought-organisation technique designed to satisfy the needs of the whole brain would have to include not only words, numbers, order, sequence, and lines, but *also* colour, images, dimension, symbols, and visual rhythms etc: in other words Mind Maps.

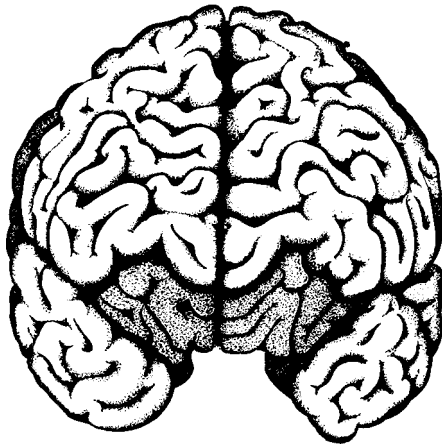


Fig 40 The left and right brain.

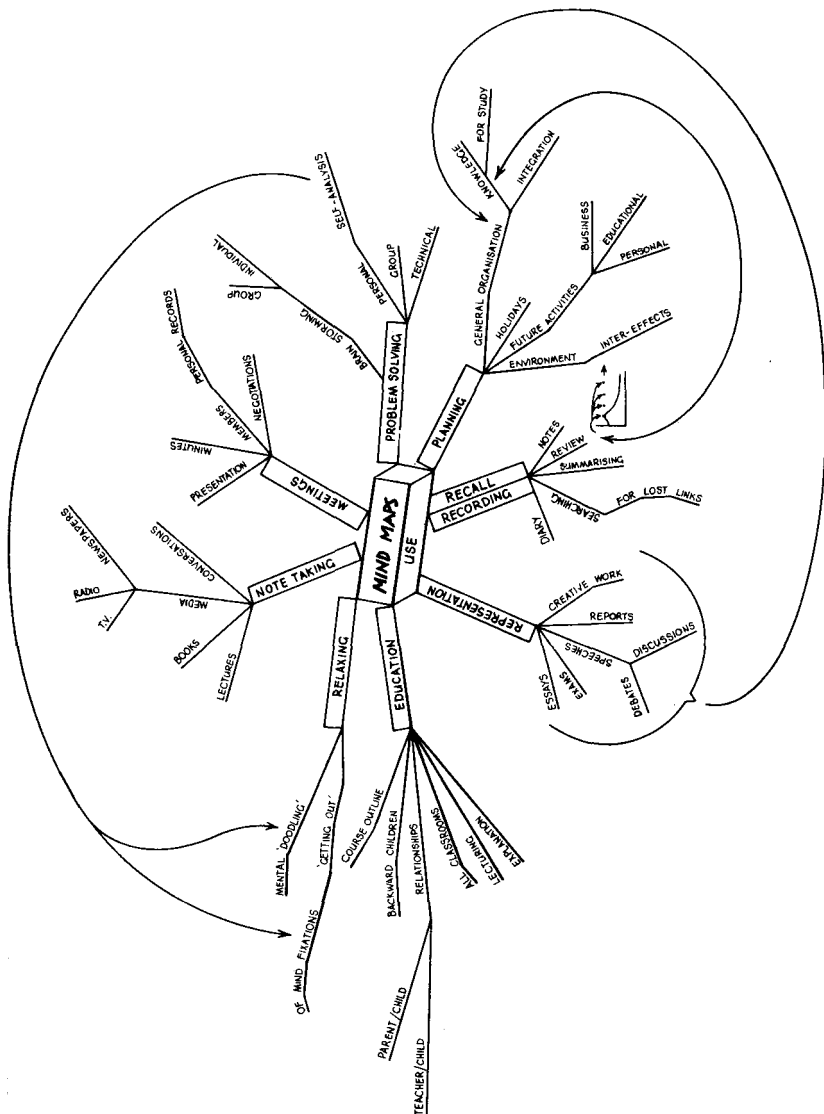


Fig 41 A mind map on the uses of mind maps. See textpage 112.

From *whatever* perspective one approaches the question, be it from the nature of words and information, the function of recall, holographic models of the brain, or recent brain research, the conclusions in the end are identical - in order to fully utilise the brain's capacity, we need to consider each of the elements that add up to the whole, and integrate them in a unified way.

Mind maps - uses

The nature of mind maps is intimately connected with the function of the mind, and they can be used in nearly every activity where thought, recall, planning or creativity are involved. Figure 41 is a mind map of the use of mind maps, showing this wide variety of uses. Detailed explanation of each of these aspects would of course take up a large book, but in the remainder of this chapter I shall explain the application of maps to the speech writing, essay writing, examination type of task; to meetings and communications, and to note taking.

Transforming a mind map to a speech, article etc.

Many people, when first shown mind maps, assume that they cannot be used for any linear purpose, such as giving a talk or writing an article. Nothing could be further from the truth. If you refer to the mind map of this chapter on page 100, you will find how such a transformation took place:

Once the map has been completed, the required information is readily available. All that is necessary is to decide the final order in which to present the information. A good mind map will offer a number of possibilities. When the choice is being made, each area of the map can be encircled with a different colour, and numbered in the correct order. Putting this into written or verbal form is simply a matter of outlining the major areas to be covered, and then going through them point by point, following the logic of the branched connections. In this way the problem of redrafting and redrafting yet again is eliminated - all the gathering and organising will have been completed at the map stage.

Using these techniques at Oxford University, students were able to complete essays in one third of the previous time while receiving higher marks.

Note taking

It is advisable, when taking notes, to have two blank pages ongoing at the same time. The left-hand page should be for mapped information and the right-hand page for more linear or graphic information such as formulas, special lists, and graphs etc. *See fig 42.*

When taking notes, especially from lectures, it is important to remember that key words and images are essentially all that is

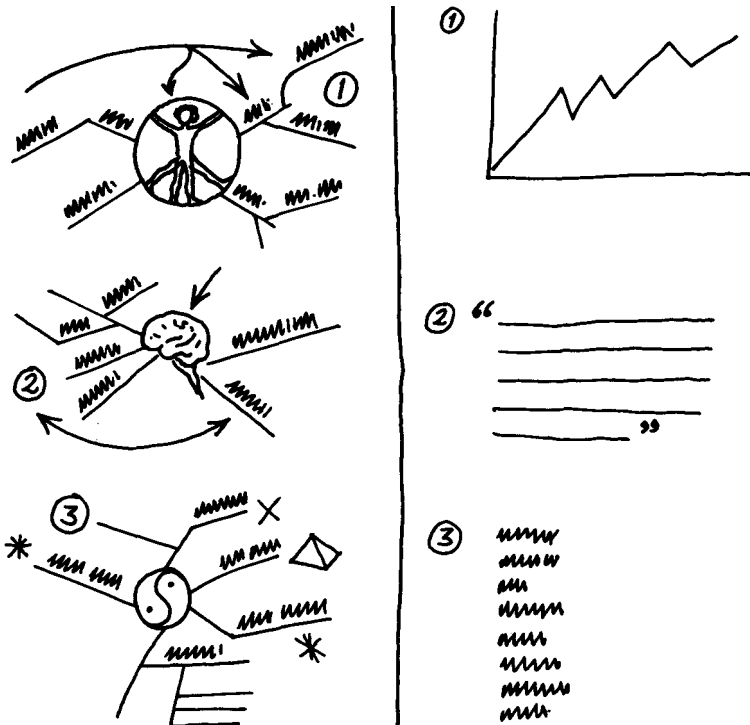


Fig 42 Recommended general form for note taking. Two pages should be used concurrently, one for mind maps, the other for graphic or more linear information. These example notes on body, mind and spirit may originally 'look messy' but they are in fact neater than traditionally 'neat' notes. See text pages 112 and 114.

needed. It is also important to remember that the final structure will not become apparent till the end. Any notes made will therefore probably be semi-final rather than final copy. The first few words noted may be fairly disconnected until the theme of the lecture becomes apparent. It is necessary to understand clearly the value of so-called 'messy' as opposed to 'neat' notes, for many people feel apprehension at having a scrawly, arrowed, non-linear page of notes developing in front of them. 'Neat' notes are traditionally those which are organised in an orderly and linear manner. *See fig 33* in the previous chapter. 'Messy' notes are those which are 'untidy' and 'all over the page'. *See fig 42*. The word 'messy' used in this way refers to the *look* and not to the *content*.

In note taking it is primarily the content and not the look that is of importance. The notes which look 'neat' are, in informational terms, messy. As explained on pages 93 and 95, the key information is disguised, disconnected, and cluttered with many informationally irrelevant words. The notes which look 'messy' are informationally far neater. They show immediately the important concepts, the connections, and even in some cases the crossings-out and the objections.

Mapped notes in their final form are usually neat in any case and it seldom takes more than ten minutes to finalise an hour's notes on a fresh sheet of paper. This final map reconstructing is by no means a waste of time, and if the learning period has been organised properly will fit in perfectly as the first review. *See pages 58 to 60*.

Communications and meetings

Meetings, notably those for planning or problem solving, often degenerate into situations where each person listens to the others only in order to make his own point as soon as the previous speaker has finished. In such meetings many excellent points are passed over or forgotten, and much time is wasted. A further aggravation is that points which are finally accepted are not necessarily the best, but are those made by the most vociferous or most important speakers.

These problems can be eliminated if the person who organises the meeting uses a mind map structure. On a board at the front of the room the central theme of the discussion, together with a couple of the sub themes, should be presented in basic map form. The members of the meeting will have pre-knowledge of what it is about, and will hopefully have come prepared. As each member finishes the point he is making, he can be asked to summarise it in key form, and to indicate where on the overall mind map he thinks his point should be entered.

The following are the advantages of this approach:

- 1 The contribution of each person is registered and recorded properly.
- 2 No information is lost.
- 3 The importance given to ideas will pertain more to what was said than to who said it.
- 4 Digressions and long wafflings will be eliminated because people will be talking more to the point.
- 5 After the meeting each individual will have a mapped record and will therefore not have lost most of what is said by the following morning.

One further advantage of mind maps, especially in note taking and communications, is that the individual is kept continually and actively involved in the complete structure of what is going on, rather than being concerned solely with 'getting down' the last point made. This more complete involvement will lead to a much greater critical and analytical facility, a much greater integration, a much greater ability to recall and a much greater overall understanding.