

The Speed Reading Course



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Introduction

We all learn to read at school, after a fashion. But for most of us, this is not an optimal use of our brain power. In this course you will learn to better use the left brain's focused attention combined with the right brain's peripheral attention, in close harmony. Good communication between the brain hemispheres is a pre-requisite for creative thinking and also a sense of well-being, where thoughts and feelings are integrated.

As you probably expect, this course will also teach you to read much faster and at the same time, to remember more of what you have read. These are obviously great advantages.

There is another major benefit. Most of us, as we read, 'speak' the words in our heads. It is this subvocalisation that holds back fast reading and it is unnecessary. It is possible to have an inner speech, a kind of 'thought awareness,' that isn't linked to the tongue, mouth and vocal chord muscles, and this is much faster and more fluent. Cutting out the identification of vocalisation and the stream of thought gives a surprising by-product. Many of us think that our constant subvocalised 'speaking voice' is who we are. Finding out that you can think and be aware without a vocal stream of words, opens up your consciousness to the usually unrecognised domain of intuition and spiritual awareness. You'll have a better sense of who you really are. Try it and see!

The Definition of Reading

Reading may be defined as an individual's total inter-relationship with symbolic information. Reading is a communication process requiring a series of skills. As such reading is a thinking process rather than an exercise in eye movements. Effective reading requires a logical sequence of thinking or thought patterns, and these thought patterns require practice to set them into the mind. They may be broken down into the following seven basic processes:

1. Recognition: the reader's knowledge of the alphabetic symbols.
2. Assimilation: the physical process of perception and scanning.
3. Intra-integration: basic understanding derived from the reading material itself, with minimum dependence on past experience, other than a knowledge of grammar and vocabulary.

4. Extra-integration: analysis, criticism, appreciation, selection & rejection. These are all activities which require the reader to bring his past experience to bear on the task.
5. Retention: this is the capacity to store the information in memory.
6. Recall: the ability to recover the information from memory storage.
7. Communication: this represents the application of the information and may be further broken down into at least 4 categories, which are:
 - * Written communication;
 - * Spoken communication;
 - * Communication through drawing and the manipulation of objects;
 - * Thinking, which is another word for communication with the self.

Many problems in reading and learning are due to old habits. Many people are still reading in the way that they were taught in elementary school. Their reading speed will have settled to about 250 w.p.m. Many people can think at rates of 500 w.p.m. or more, so their mind is running at twice the speed of their eyes. A consequence is that it is easy to lapse into boredom, day-dreaming or thinking about what you want to do on the weekend. Frequently, it is through this type of distraction that you find you have to re-read sentences and paragraphs, and you find as a result, ideas are difficult to understand and remember.

The basic problem - the mismatch between thinking speed and reading speed - arises for the most part from the inadequate methods by which reading is taught. Since the War there have been two main approaches: the Look-Say method and the Phonic method. Both methods are only semi-effective. In the Phonic method a child is first taught the alphabet, then the different sounds for each of the letters, then the blending of sounds and finally, the blending of sounds which form words. This method works best with children who are left-brain dominant. In contrast, the Look-Say method works best with children who are right-brain dominant. It teaches a child to read by presenting him with cards on which there are pictures of objects, the names of which are printed clearly underneath. By using this method a basic vocabulary is built up, much in the manner of learning to read Chinese. When a child has built up enough basic vocabulary, he progresses through a series of graded books similar to those for the child taught by the Phonic method, and eventually becomes a silent reader. In neither of the above cases is a child taught how to read quickly and with maximum comprehension and recall. An effective reader has usually discovered these techniques all by himself.

Neither the Look-Say method nor the Phonic method, either in isolation or in combination, are adequate for teaching an individual to read in the complete

sense of the word. Both these methods are designed to cover the first stage of reading, the stage of recognition, with some attempt at assimilation and intra-integration, but children are given little help on how to comprehend and integrate the material properly, nor on how to ensure it is remembered. The methods currently used in schools do not touch on the problems of speed, retention, recall, selection, rejection, concentration and note taking, and indeed all those skills which can be described as advanced reading techniques.

In short, most of your reading problems have not been dealt with during your initial education. By using appropriate techniques, the limitations of early education can be overcome and reading ability improved by 500% or more. For example, skipping back over words can be eliminated as 90% of back-skipping is unnecessary for understanding. The 10% of words that do need to be reconsidered are probably words which need to be looked up in a dictionary and clearly defined.

GOLDEN RULE: When studying this course, and indeed, whenever reading passages that you want to understand and make use of, make sure never to pass by a word or concept that you do not understand. If you do pass by a misunderstood word or concept, the rest of the text will probably become incomprehensible, and you will feel distracted and bored. If it's worth reading at all, then you owe it to yourself to define any word you're not sure of, or find the misunderstood word(s) in the concept that is unclear and sort that out before going further. If your studies bog down, go back to where you were doing well, clear up your understanding and start off again from that point.

Techniques in this course will reduce the time for each fixation (the assimilation of a group of words simultaneously) to less than a quarter of a second, and the size of fixation can be increased from one or two short words to as many as five words or half a line. Your eyes will be doing less physical work; rather than having as many as 500 tightly focused fixations per page, you will be making about 100, each of which is less fatiguing, and reading speed will exceed 1,000. w.p.m. on light material.

The Eye and its Movements

In order to understand how we read and how reading may be improved, we must first look a little at how the eye works. Light entering the eye is focused by the lens onto the retina, which lines the inside of the eye. The retina itself consists of hundreds of millions of tiny cells responsive to light. Some cells - the cones - respond to specific colours; others - the rods - to the overall light intensity. These cells are connected to a web of nerves extending over the retina, which relay information to the visual cortex.

The centre of the retina, called the fovea, is a small area in which the cells are much more tightly packed, so that the perception of images falling on the fovea is much sharper and more detailed than elsewhere on the retina. When we focus our attention on something, the light from that item is focused onto the fovea - this is called a fixation.

A reader's eyes do not move over print in a smooth manner. If they did, they would not be able to see anything, because the eye can only see things clearly when it can hold them still. If an object is still, the eye must be still in order to see it, and if an object is moving, the eye must move with the object in order to see it. When you read a line, the eyes move in a series of quick jumps and still intervals. The jumps themselves are so quick as to take almost no time, but the fixations can take anywhere from a quarter to one and a half seconds. At the slowest speeds of fixation a student's reading speed would be less than one hundred w.p.m.

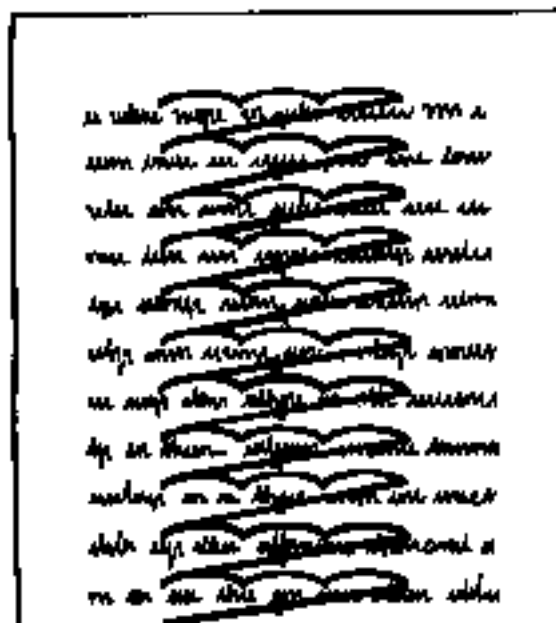
Thus the eye takes short gulps of information. In between it is not actually seeing anything; it is moving from one point to another. We do not notice these jumps because the information is held over in the brain and integrated from one fixation to the next so that we can perceive a smooth flow. The eye is rarely still for more than half a second. Even when you feel the eye is completely still (as when you look steadily at a fixed point such as the following comma), it will in fact be making a number of small movements around the point. If the eye were not constantly shifting in this way, and making new fixations, the image would rapidly fade and disappear. The untrained eye takes about a quarter of a second at each point of fixation, so it is limited to about four fixations per second. Each fixation of an average reader will take in two or three words, so that to read a line on this page probably takes between three and six fixations. The duration of the stops and the number of words taken in by each fixation will vary considerably, depending on both the material being read and the individual's reading skill.

Although the sharpest perception occurs at the fovea, images that are off-centre are still seen, but less clearly. This peripheral vision performs a most valuable

function during reading. Words that lie ahead of the current point of fixation will be partially received by the eye and transmitted to the brain. This is possible because words can be recognised when they are in peripheral vision and the individual letters are too blurred to be recognised. On the basis of this slightly blurred view of what is coming, the brain will tell the eye where to move to next. Thus the eye does not move along in a regular series of jumps, but skips redundant words and concentrates on the most significant (useful and distinguishing) words of the text.

Immediate memory span depends on the number of 'chunks' rather than the information content. When we read, we can take in about five chunks at a time. A chunk may be a single letter, a syllable, a word, or even a small phrase - the easier it is to understand, the larger will be the chunks.

In the case of a skilled reader, the fixation points tend to be concentrated towards the middle of a line of print. When the eye goes to a new line, it does not usually start at the beginning, instead it starts a word or two from the edge. The brain has a good idea of what is to come from the sense of the previous lines and only needs to check with peripheral vision that the first few words are as anticipated. Similarly, the eye usually makes its last fixation a word or two short of the end of a line, again making use of peripheral vision to check that the last few words are as expected.



The rhythm and flow of the faster reader will carry him comfortably through the meaning, whereas the slow reader will be far more likely to become bored and lose the meaning of what he is reading. A slow reader, who pauses at every word and skips back reading the same word two or three times, will not be able

to understand much of what he reads. By the end of a paragraph the concept is lost, because it is so long since the paragraph was begun. During the process of re-reading, his ability to remember fades, and he starts doubting his ability to remember at all.

There is a dwindling spiral of ability. The person re-reads more, then loses more trust in his memory and finally concludes that he doesn't understand what he is reading. For over a hundred years, experts in the field of medical and psychological research have concluded that most humans only use from 4% to 10% of their mental abilities - of their potential to learn, to think and to act. Speeding up a process such as reading is a very effective method of enabling a person to access a larger proportion of the 90-95% of the mental capacity that he is not using. When a person is reading rapidly, he is concentrating more, and when he can raise his speed of reading above about 500 w.p.m. with maximum comprehension, he is also speeding up his thinking. New depths of the brain become readily accessible.

In addition, accelerated reading can reduce fatigue. Faster reading improves comprehension, because the reader's level of concentration is higher, and there is less cause for him to develop physical tensions such as a pain in the neck or a headache. A further benefit is the improvement of the completeness of thought. E.g. try watching a 90 minute video tape in 9 ten-minute sections; comprehension will be much less than it would be had the video been presented in its entirety.

There is an optimum reading speed for maximum comprehension, which is proportional to your top speed. This rate will vary from one type of material to another, and finding the best rate for the material you are reading is critical for good comprehension.

Test of Reading Speed

Choose a novel or book that you are interested in and can read easily. Measure the time it takes to read five pages. Your reading speed can then be calculated using the following formula:

w.p.m. (speed) = (number of pages read) times (number of words per average page), divided by (the number of minutes spent reading).

Are you a Left-Brain Reader or a Right-Brain Reader?

Recently researches were carried out in the United States to determine the difference between a left-brain reader and a right-brain reader. A special apparatus was constructed, consisting of a television screen to present the reading material, with a cursor that the subject had to fixate upon. Eye-movements were monitored electronically, so the cursor would move when the subject moved his eyes. The equipment could be set up in two modes. In the first mode, material to the left of the cursor would blank out on the screen, if the subject attempted to move his fixation point to the right of the cursor. In the second mode, material to the right of the cursor would blank out, if the subject attempted to move his fixation point to the left of the cursor.

In the first (left-brain) mode, when words to the left of the cursor blanked out, preventing the subject from regressing or back-skipping, this duplicated the habitual pattern of a left-brain reader, who always reads one or more words ahead of a particular fixation point. In the second (right-brain) mode, when words to the right of the cursor blanked out, preventing the subject from anticipating by reading one or two words ahead of the fixation point, this duplicated the habitual pattern of a right-brain reader, who tends to re-read the words leading up to a particular fixation point.

This equipment was tested on a group of 30 subjects. When the equipment was set-up in the left-brain mode, the maximum observed average reading speed of the group was 1600 w.p.m., and when the equipment was set-up in the right-brain mode, the maximum observed average reading speed of the group was 95 w.p.m.; a difference of 17:1. Note: with material presented in the left-brain mode the average reading speed of the group was raised from 500 w.p.m. to 1600 w.p.m.; it was more than trebled.

Without the specialised equipment described above, this test is somewhat subjective, although it should give you a good indication. The steps are as follows:

1. Take a novel and read this silently whilst running your finger along the line of print as you read it.
2. Note carefully: How far are you reading ahead of your fixation point? The fixation point is determined by your finger position.
3. Do you find that it is difficult to read ahead of the fixation point? Do you find that you are holding on to the two or three words you have just read?

If the answer to 2. is yes, and you are reading ahead of the fixation point, you

are a left-brain reader. If the answer to 3. is yes, and attention is drawn back to the words that you have already read, then you are a right-brain reader.

Visual Guides

A visual guide is a pointer, such as the end of a pencil or a fingertip, moved along underneath a line of print. The reason children are discouraged from pointing to the words as they read them, is that stopping to point at each individual word can indeed slow down reading. But if instead, the finger is moved along smoothly underneath the line of text, it can help to speed up reading considerably, for three reasons:

1. If the eye is trained to follow the visual guide, then most unnecessary back- skipping is eliminated.
2. Deliberately speeding up the visual guide will help the eye to move along faster.
3. As the eye moves faster it is encouraged to take in more words with each fixation. This increases the meaningful content of the material - each chunk makes some sense - so that comprehension actually improves.

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The following practical procedures are divided into six sections:

- A. Preliminary Exercises, to teach a better method of inner speech.
- B. Speed Perception, to improve your capacity to duplicate;
- C. Pacing & Scanning Techniques, to improve your initial understanding at speed;
- D. In-Depth Reading Techniques, including the use of keywords and mindmaps to improve depth of understanding;
- E. Visual Reading Techniques, to improve retention and recall.
- F. Defeating the Decay of Memories, to apply the newly acquired speed of thought to learning new information.

Therefore, the following selection of exercises reflect the three dimensions of Duplication, Understanding, and Memory.

A. Preliminary Exercises

Subvocalisation & the Thought-Stream

There are two types of reading: the first type is a compulsive speaking aloud of words as they are read. This may be at an inaudible and sub-conscious level, but is nevertheless expressing perceived words in equivalent movements of the tongue and larynx - a kinaesthetic representation. We will call this process 'subvocalisation' on this course. The second type we will call 'thought-stream', and this consists of understanding and imagery only, with no vocal or subvocal expression.

Generally speaking, subvocalisation is unnecessary to the adult reader, except perhaps when reading poetry (in which case rhythm, rhyme, and alliteration are an important component, and so subvocalisation may be more enjoyable when poetry is read silently). However, subvocalisation limits the maximum reading speed to about 300 w.p.m. +/- 20%. In contrast, a trained reader may read at more than 1000 w.p.m. with a pure thought-stream.

A thought-stream is essential for full understanding. Although it may be possible to read light material such as a novel without using a thought-stream at all, memory will be impaired. The thought-stream is particularly important when reading abstract material that cannot be easily visualised, and when long and complicated sentence constructions are used. When this type of material is read and the thought-stream is suppressed, it is nearly impossible to preserve word order and syntax. When the material is difficult to visualise, syntax and word order may be the only guides to meaning and understanding.

Before a student can learn to let go of subvocalisation without at the same time suppressing inner speech altogether, he has to learn to differentiate between subvocalisation and the thought-stream. This first step can be done by a process of localisation. Most people will experience subvocalisation as being connected with the mouth or the throat, and also the breath. When asked to attend to it fully, a person will tend to look down.

The thought-stream will be experienced more in the top of the head, without connection to the vocal organs or breath; it is a kind of thought awareness, based on an understanding of the stream of words being read. Differentiation between the two types of reading may be achieved through the following steps:

Step 1. Choose a page from a light novel. Easily understood material is required because even when a good reader is reading something that he finds difficult to comprehend, there will be a tendency to revert to subvocalisation, when a phrase or sentence containing unfamiliar or foreign words is presented. Unfamiliar words can only be held in mind either by having extremely good powers of auditory visualisation or by rehearsing them subvocally.

Note: a reader using thought-stream, rather than subvocalisation, will find he is able to detect misunderstood words more easily, because he will revert to subvocalisation as he strives to give meaning to the unfamiliar. If you find yourself suddenly subvocalising when you would otherwise use thought-stream, this is a strong indication that you have just gone past a word that is misunderstood, or a group of words forming a concept that does not make sense. Misunderstood words should each be defined and then the concept re-evaluated.

Step 2. Count out loud from one to ten repeatedly, whilst reading the page silently using thought-stream. Counting out loud will occupy the motor-vocal system, so that the mind is unable to subvocalise.

Step 3. When you are able to read silently whilst counting out loud, then begin to read silently using thought-stream and to count silently at the same time using sub-vocalisation.

An alternative method to counting is to say or subvocalise a repeated "Eee ... eee ... eee ..." which has the same effect of occupying the vocal-motor system. Get plenty of practice with Steps 2 & 3, so that this skill is fully acquired and you can easily recognize the difference between 'spoken' subvocalisation and the thought-stream.

Step 4. Once you can read silently whilst counting silently, begin to increase your reading speed. When your reading speed exceeds 360 w.p.m., the two types of subjective reading will become more differentiated. ([Test](#)). By using thought-stream you can read much faster, whereas subvocalisation is limited by the speed of motoric response.

Step 5. Now that you can easily read with thought-stream, leaving behind any subvocalisation, it is time to add more character to the inner speech, so that it is not just a silent stream of thought but is also a stream of visualisation. Image the dialogue of the novel, adopting different voices in your inner speech to suit the characters. This should further differentiate your thought-stream from subvocalisation, which would always tend to be a reflection of your own voice. At the same time, visualise the scenarios of the story, hear the environmental

sounds, smell all the various scents, and feel the emotions portrayed.

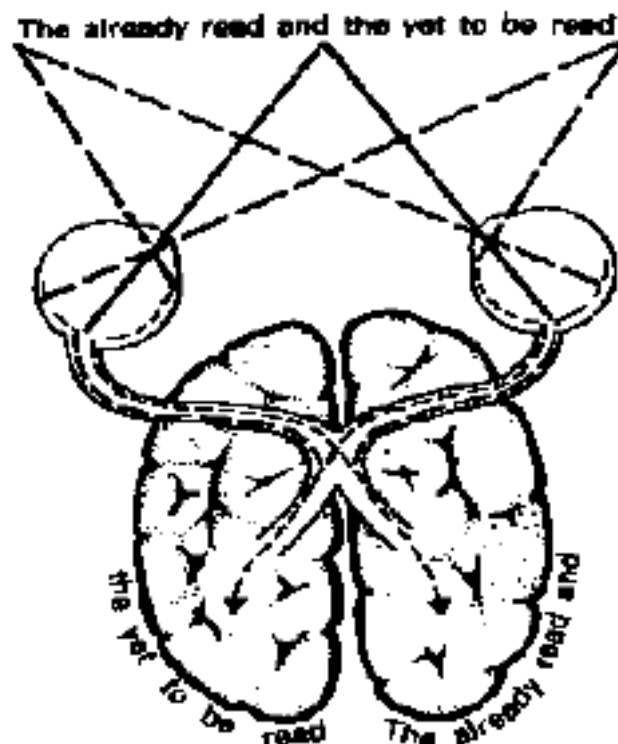
Continue with the above exercises until you have a reality about the two types of reading (subvocalised and thought-stream) and can choose between them. This approach is better than trying to suppress subvocalisation altogether.

By suppressing both types of subjective reading, one can learn to skim at more than 2000 w.p.m., however, there will be very little retention of what has been read. This type of reading is valuable only when one is searching for a particular datum, or when one is doing this as a perceptual exercise.

Maladaptive Scanning Patterns

Since the left hemisphere is better at verbal tasks, whatever lies in the right visual field will have its verbal content processed more quickly than that which lies in the left. If a person is reading from left to right, the material that has not been read, but which is nevertheless being processed peripherally, is being received by the left side of the brain, more specialised at verbal processing. Reading right to left, or looking back over what has been read, will therefore be processed by the right hemisphere, resulting in confusion.

The following diagram illustrates the visual processing of a line of text. When reading left to right, the material yet to be read is taken in with peripheral vision and analysed for content by the linguistic left hemisphere. This helps the brain decide the best next point of fixation and increases the efficiency of reading.



Book-worms are nearly always using the right hand visual field (connected to the left hemisphere), and dyslexics use the left visual field (connected to the right hemisphere). Both these extreme cases tend to have maladaptive scanning patterns, because they are nearly always using one side of the nervous system exclusively. Maladaptive patterns will include back-skipping, missing lines, and reading the same line twice. Practicing the speed reading techniques as presented in this course should help to correct these patterns.

B. Speed Perception

Many speed reading courses currently available operate by changing a student's motivation and by the suggestion that the course will be successful. With focused conscious intention, reading speed can be increased by about ten percent per session, and it may sometimes be doubled during a course of 10-20 sessions. However, this is the absolute limit for this type of approach. The length of time it takes to make a fixation and the number of words fixated are changed but little, most of the improvement has occurred because there is less mind wandering and back-skipping. The gains from this type of reading course are seldom stable, because the underlying problem of perception remains unhandled.

In contrast, by turning pages as fast as possible and attempting to see as many words per page as one can, perception and the will are conditioned into much more rapid and efficient reading practices. This high speed conditioning can be compared to driving along a motorway at 100 miles per hour. Imagine that you have been driving for an hour at this speed. Suddenly you come to a road sign saying 'Slow down to 30 m.p.h.' Now imagine that your speedometer is not working; what speed would you actually slow down to? The answer would probably be 50-60 m.p.h.

The reason for this is that your perceptions have become conditioned to a much higher speed, which becomes 'normal'. There is a ratchet effect by which previous 'normals' are more or less forgotten as the result of the perceptual conditioning. The same principle applies to reading; after high speed practice, you will often find yourself reading at twice the speed, without even feeling the difference.

Speed Perception

1. Point with your index finger or a pen to the words you are reading. Try and move your finger faster, this will aid you in establishing a smooth and rhythmical reading habit.
2. As you move your finger along the line that you are reading, try and take in more than one word at a time.
3. When you have reached the limits of the previous exercise, then take some light reading material and try to read more than one line at the same time. Magazine articles are good for this purpose because many magazines have narrow columns of about 5 or 6 words, and often the material is light reading.
4. Various patterns of visual guiding should be experimented with. These

include diagonal, curving, and straight-down-the-page movements. Exercise your eye movements over the page, moving your eyes on horizontal and vertical planes and diagonally from the upper left of the page to the lower right and finally, from the upper right to the lower left. Try to speed-up gradually day by day. The purpose of this exercise is to train your eyes to function more accurately and independently.

5. Practice reading as fast as you can for one minute, without worrying about comprehension. Don't worry about your comprehension this is an exercise of perceptual speed.
6. For this exercise you are concerned primarily with speed, although at the same time you are reading for as much comprehension as possible. Reading should continue from the last point reached. Do this for one minute and then calculate your reading speed (see [Test](#)) - call this your highest normal speed.
7. Practice reading (with comprehension) for one minute at approximately 100 w.p.m. faster than your highest normal speed.
8. When you can do that, continue increasing your speed in approximately 100 w.p.m. increments. If you calculate how many words there are on an average line, then it is easy to convert w.p.m. into lines per minute. E.g. if a line has 10 words and you are reading at one line per second, then you are reading at 600 w.p.m.
9. Start from the beginning of a chapter and practice reading three lines at a time, with a visual aid (such as a card) and at a fast reading speed, for 5 minutes.
10. Read on from this point, aiming for comprehension at the highest speed possible. Do this for five minutes, then calculate and record your reading speed in w.p.m.
11. Take an easy book and start at the beginning of a chapter. Skim for one minute using a visual guide at 4 seconds per page.
12. Return to the beginning of the chapter and practice reading at your minimum speed for five minutes.

C. Pacing & Scanning Techniques

The previous Speed Perception exercises involving reading three lines at a time or a page in four seconds, may be called 'skimming' - this is a superficial way of reading, more a perceptual exercise than reading for meaning. **Pacing**, the next reading technique to be learned, describes an unconventional way of reading a page, which can reduce the amount of work by more than half without significantly reducing the comprehension. The following **Scanning** technique is a two-step process that involves collecting related facts and ideas and arranging them in a meaningful sequence. This involves the skill of summarising.

Pacing

A plastic ruler or strip of transparent plastic 5 cm wide, is placed vertically down the page, as shown below, to delineate the section of the page where your Pacing Technique will be used.

By fixating only the words in the pacing zone, you reduce your reading time by about one half. But you don't reduce your comprehension by one half because you are forced to think beyond the words your eyes are seeing. When your thoughts are on the same subject as the material you are reading, the addition of your personal experience to the reading increases your understanding and memory.

If you read within the pacing zone by sliding back and forth in a Z or S-type pattern to the bottom of the page, you will find that you have read about 200 words with no more than 50 or 60 fixations. All the time you are reading in this way, your eyes are seeing and picking-up the odd word from peripheral vision and you are thinking all the time and putting together ideas, because the mind abhors a vacuum.

Using a 5cm transparent plastic ruler:

(see next page...)

When we read our eyes scan along the lines picking up information as they go. When we reach the end of one line we go back and start at the beginning of the next. The television set works on a scanning principle. A spot of light scans very rapidly across the surface of the tube in a regular pattern covering one line after another and then flying back to the top to start all over again. As it scans across, the intensity of the spot is altered by the signal coming from the transmitting station. In this way a black and white picture would be transmitted. The basic process is similar for colour television except that each colour is treated separately. A sailor scans the horizon for land or for another ship. A semicircular radar aerial moves round and round as it scans the sky or the sea for metal objects that will reflect back the radar waves and show up the object as a blip on the radar screen. A scan is a fixed pattern of search or movement that covers the area in question irrespective of what it finds. The sailor sweeps his eyes backwards and forwards over the horizon. This may be a true scan. But when the sailor finds another ship his eyes fasten on to it and follow its progress. This is no longer a scan. In contrast the radar scan continues irrespective of what has just been shown on the screen.

There is a suggestion that the brain-waves which we can pick up with an electro-encephalogram represent a scanning system in the brain. It is supposed that this scanning system takes a look at the different parts of the brain and puts together what it sees to give an overall output. The difference between a scan and a random search is that the scan is methodical whereas the random search may go over some areas repeatedly and others not at all. Furthermore a scan is not meant to be a search for something specific but a way of seeing whatever is there. You may search the horizon for a ship or scan the horizon to see what is there.

(Text from 'Wordpower' by Edward de Bono)

The first 10-15 times you use this technique, expect to be frustrated. At first you may remember only 3 or 4 words from each reading, but your objective is to go past the literal act of remembering isolated words, to collecting and relating ideas. This takes a lot of practice, so don't give up! Once you have become used to this manner of reading, you can develop the use of the technique further by letting your eyes stray beyond the boundaries of the ruler, selecting from the page the words that are most informative. As you practice in this way, try to fixate on parts of speech, i.e. nouns, verbs, adjectives, etc. You will find that you start to see more and more through peripheral vision, and as a result you will find that you are concentrating more and speeding-up your thinking.

Pacing Exercise

1. Place the book you intend to read in front of you and place the plastic ruler or strip as above.
2. Use your right index finger or a pen as a pacer, moving it smoothly down the centre of the page, over the transparent strip. This may be helpful until you have disciplined your eyes to 'pace the page'. You may find that moving a 3 x 5 cm card down the plastic strip will be less distracting. The reason to use either the card, a pen, or your fingers in this way is to keep your eyes moving down.
3. When you reach the bottom of the page, jot down any words you remember. If you do not remember any words at all, don't let this upset you - you will improve with practice. Eventually you will remember thoughts and groups of words. By pausing frequently to mentally summarise what you have read, you will organise your thoughts and improve retention.

To acquire the skill of rapid reading requires you to break old habits and form new ones. The most important habit to break is the habit of reading word-by-word, whilst expecting complete comprehension. Many reading exercises require you to forget comprehension and concentrate all your efforts on the physical skill of speed reading.

To master the Pacing Technique you must understand the training you are going to give your mind. You are being asked to look at words so fast that you cannot possibly pronounce them, and so fast that you cannot understand them either. Every time you do the above exercises you will comprehend a few words. As you continue with these exercises, you will begin to grasp thoughts and eventually, you will read at a much higher speed. When performing this type of exercise, you should always go back and re-read the passage at a comfortable rate, i.e. at a rate at which you can obtain understanding.

Every time you do a speed-exercise and then return to what appears to be your

normal speed, you will find that your normal speed has become faster.

Since written English is often highly redundant, i.e. much of the material can be omitted without any loss of meaning, a large proportion of information in a text can be absorbed through peripheral vision. Words that are highly likely to occur in a given context do not have to be checked by looking directly at them - peripheral vision can check that they are what is expected even while the eye is fixating elsewhere. The Pacing Technique helps prepare you to read in this expanded way, reading not along each line, but from side to side of the centre of the page, taking in most of a line in one glance, and also peripherally absorbing several further lines beneath it.

Making fuller use of peripheral vision, the skilled reader is able to get a better idea of the general sense of what is to follow, and this helps to speed up reading as well as to understand and integrate the material. This is why many students find that as soon as they become adept at speed reading, their comprehension actually increases. They have a broader perspective of what they are reading, and since they are reading faster, the short-term memory for what has just been read goes back several sentences further and the words currently being read are understood within a larger context.

High-speed training has two further advantages: It encourages you to see the key words in the text; and it brings the right hemisphere (which controls peripheral vision) into the reading process, increasing integration and thereby facilitating the right-brain's ability to synthesise relationships within the material.

Scanning

A scan is a fixed pattern of search. Scanning is a useful preliminary action, to preview material rapidly before reading it in-depth. This gives you more of the context of what you go on to read and having viewed it once already, it will have some familiarity and retention will be improved.

1. Make a rapid scan of a light novel. Start at a rate of 15 seconds per page. Later, with practice, this time can be reduced to 12 or 10 seconds per page or even less.
2. You are scanning for significant people, events and conflicts. At the end of each chapter stop to review what you have just read. Then try and speculate about the contents of the next chapter.
3. When you have scanned several chapters, no more than five, then you will probably need to ask yourself some questions relating to missed events and information, in order to be able to follow the development of the story. Speculate on these answers, then go back and re-read these chapters

normally, to see if you were correct.

4. When you have reached the end of the book in the above manner, take some time to summarise the story mentally. Form and answer any unanswered questions about the story and evaluate what you gained from this book.

By using the above exercises you will soon find that you have much greater concentration and retention. Through these procedures you will have developed a lasting and very useful skill.

D. In-Depth Reading Techniques

Scanning techniques are not really useful for fiction - because you don't want to know what's going to happen ahead of time! With serious and non-fiction material they are useful to assess the contents and quality, to provide a context for your study, to find a particular datum or to decide whether to actually study the material. But it is of little value to be able to read at 2,000 words per minute if half an hour later 90% of the information has been forgotten. Reading, as described earlier, includes not only the recognition and assimilation of the written material, but also understanding, comprehension, retention, recall and communication.

The most common approach to the study of a new text is the 'start and slog' approach. The reader opens the book at page 1 and reads through to the end. This might seem the most obvious approach, but it is in fact an inefficient use of the reader's knowledge and time and has a number of disadvantages:

1. Time may be wasted going over material that is already familiar, or that is irrelevant to the study in question, or which may be more conveniently summarised later.
2. The reader has no overall perspective until he finishes the text, and possibly not even then.
3. Any information that is retained is usually disorganised; it is seldom well integrated with the rest of the book nor with the reader's whole body of knowledge.
4. Motivation is low and the reader tends to become bored, dull and tired, leading to poor reading efficiency.

A linear approach to study is like going shopping by systematically walking along each street, going into every shop, hoping to find something but not knowing what.

The holistic approach to study parallels the normal activity of shopping: one prepares a list of what is required, goes only down the relevant streets (noticing other shop windows on the way in case they contain unexpected items of interest), and visits only those stores that contain all that one needs, with time and energy to spare.

In-Depth Reading or 'study' is the most complicated and slowest of the reading processes. After an initial survey or pre-reading (scanning), gathering the context and main concepts, the in-depth reading involves critical and analytical thinking to interpret, evaluate, judge, and reflect on information and

ideas. There are four main aspects to in-depth reading:

1. Gathering facts and ideas.
2. Sorting facts and ideas for relative importance and their relationship to one another.
3. Measuring these ideas against one's existing knowledge base.
4. A process of selection, separating the ideas into those that you wish to remember or act upon, and ideas that you wish to reject.

In-depth reading techniques are a form of Self-Questioning. As we read we try to answer questions of HOW and WHY together with the implied suggestions: explain, describe, evaluate, interpret, illustrate, and define. When reading non-fiction and other serious material, the full procedure is as follows:

1. Establish Purpose

Answer the following question as carefully and completely as possible: What do I want to learn from this material?

Your answer to this question is your purpose for reading. It may help at this stage to review your current knowledge of the subject. This increases expectancy of what is to come, and exposes gaps in one's knowledge and a corresponding desire to fill the vacuum.

2. Survey

A book or publication should be surveyed as follows:

Read the title, any subtitles, jacket summaries (in the case of a book), and identify the source of the publication, i.e. the author and publisher.

Read the date of publication or copyright. The book may well have gone beyond its sell-by-date, e.g. a book on electric motors written in 1950 would be irrelevant, unless perhaps you were trying to mend Grandma's lawnmower.

Analyse the Index. The particular concepts listed and the way in which they are organised will tell you a particular author's bias and whether or not the book will cover the ideas that you are trying to get wise on. Frequently, the Index is a better guide for these purposes than the Contents page.

Read the Preface. Nearly always written last, it will often provide an excellent summary, and usually a statement of purpose for the book and a note on the author's perspective on the subject. Also scan the Forward

and Introduction.

Read the Table of Contents. Note the sequence and check for Chapter summaries. Chapter summaries are an abstract of the Chapter contents. They will frequently inform you whether or not a particular publication is suitable for your purposes.

The next step is to look at the visual material. Read the maps, graphs, illustrations, charts, and bold headings.

Get a close feel for the actual contents of the book by looking at beginnings and ends of chapters, subsection headings and anything else which catches the eye - bold print, italicised sections, etc. Read any summaries the author may have provided. If there are study questions at the end of each chapter, you should look at these also. This will give you an indication of the level of the book in relation to your present knowledge.

Now you have completed these steps, then decide to use the book or not.

3. Revise Purpose

Once you have surveyed the material and gained more information and if you have decided to use the book, then revise your original purpose for reading the book. Ask yourself: Why am I reading this? This will establish your specific learning objectives.

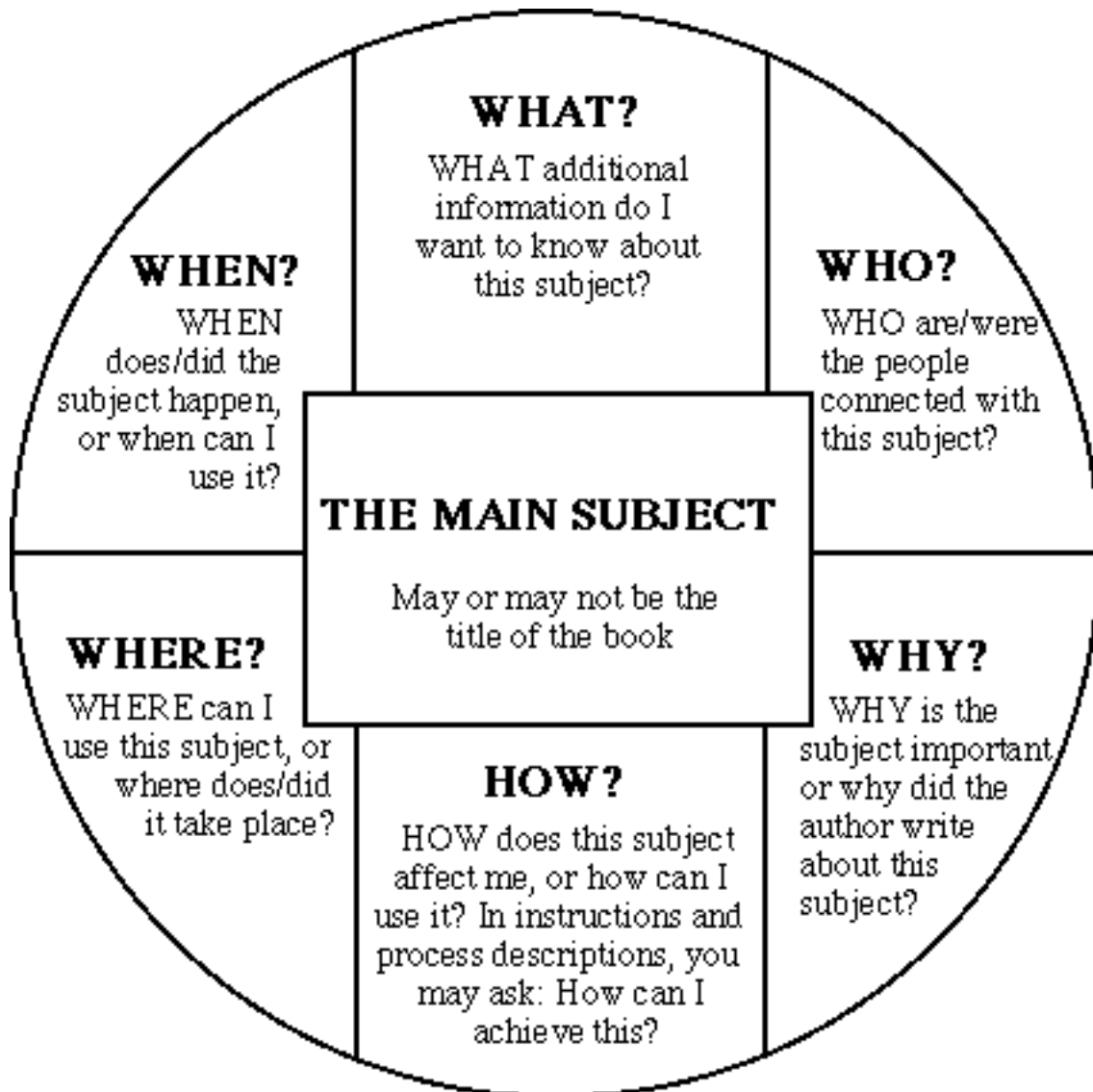
4. Study in Depth

Keeping in mind what you want to learn, speculate on what the material will tell you. Begin to read with the satisfaction of your objectives in mind. Sometimes it is inappropriate to start at the beginning, so decide where to start reading. Your overall purpose for reading the material is your best guide. Note: the manner in which the author presents his ideas will demand that you constantly vary the rate of reading and the reading technique you are using, if you wish to be efficient. If you continue reading at the same rate for a prolonged period, it is a good indication that you are not reading flexibly and that you are allowing yourself to become inefficient.

Make notes, jot down main ideas and Key Words and use Mind Maps (see later chapters). It also helps to mark or underline key words and concepts in the book itself, with a soft lead pencil that can easily be erased, to aid review. If it is your own book, do not be afraid to use different coloured pens; it helps memory and distinguishes different themes and topics.

Be prepared to omit sections that are irrelevant, already familiar, padding, repetition, outdated, or excess examples. Also reject false arguments, such as: generalisation from the particular; false premises; undefined sources; misuse of statistics, etc.

Continually ask WHO, WHAT, WHY, HOW, WHERE and WHEN questions, as an interactive dialogue between yourself and the study material, in order to extract the important facts.



The Who question helps you to hold in mind any significant people. Why classifies purposes. How classifies cause and effect sequences, time sequences, procedure or process instructions or where the new information fits into your life. The Where question points to where the action is taking place or where the new information can be used. The When question can both denote when a subject takes place and when you can use the information. Finally, the What

question allows you to take a quick survey of your current knowledge.

Take regular breaks every thirty or forty minutes. After each short rest break, take a minute to review the previous work: this consolidates the retention.

5. Evaluation

Your thoughts should be organised in such a way as to describe the things that you have learned that definitely focus on your primary purpose. Your thoughts may be organised in the following way:

- * State the most important idea or concept pertaining to your reading purpose.
- * List related key words, facts, and information in order of importance - using as few words as possible - that pertain to your learning objectives.
- * Finally, jot down important words or phrases in relation to the ideas listed above. The most important things to jot down are key people, important events, places, and dates. These will act as thought joggers or memory clues, which relate directly to the primary and secondary ideas listed.

For more about the inter-relationship of left and right brain functions, see [Two Ways of Knowing](#) in '[Transforming the Mind](#)'. Also the [Bilateral Meter](#) site contains information of profound significance in the field of psychotherapy. [Words and Meanings](#), [Semantic Development](#) and [The Semantic Differential](#) are chapters in 'Transforming the Mind' that offer further insight into the power of words, as does Ken Ward's [Notes on Alfred Korzybski's General Semantics](#).

This is taken further in [The New Life Course](#) - the complete personal development program - where many exercises reveal how false thinking entraps us in conditioned thought.

Key Word Noting

A lot of people are dissatisfied with their note taking. They realise that they take down too many words, which in turn makes it difficult to get an overview. They find it difficult to sort the essential facts out of a lecture, a meeting or study materials. Very few people have had a satisfactory training in effective note taking, so the purpose of this article is to improve this skill.

Association plays a dominant role in nearly every mental function, and words themselves are no exception. The brain associates divergently as well as linearly, carrying on thousands of different actions at the same time, searching, sorting and selecting, relating and making syntheses as it goes along, using left and right brain faculties. Thus a person often finds that in conversation, his mind is not just behaving linearly, but racing on in different directions, exploring to create new ideas and evaluating the ramifications of what is being said. Although a single line of words is coming out, a continuing and enormously complex process is taking place in the mind throughout the conversation. At the same time subtle changes in intonation, body position, facial expression, eye language, and so on, are integrated into the overall process.

Similarly the listener or reader is not simply observing a long list of words; he is receiving each word in the context of the ideas and concepts that surround it, and interpreting it in his own unique way, making evaluations and criticisms based upon his prior knowledge, experience and beliefs. You only have to consider a simple word and start recognising the associations that come into your mind, to see that this is true.

Words that have the greatest associative power may be described as **Key Words**. These are concrete, specific words which encapsulate the meaning of the surrounding sentence or sentences. They generate strong images, and are therefore easier to remember. The important ideas, the words that are most memorable and contain the essence of the sentence or paragraph are the key words. The rest of the words are associated descriptions, grammatical constructions and emphasis, and this contextual material is generally forgotten within a few seconds, though much of it will come to mind when the key word is reviewed.

Because of their greater meaningful content, key words tend to 'lock up' more information in memory and are the 'keys' to recalling the associated ideas. The images they generate are richer and have more associations. They are the words that are remembered, and when recalled, they 'unlock' the meaning again.

When a young child begins to speak, he starts with key words, especially concrete nouns, stringing them together directly - for example, 'Peter ball' or 'Anne tired'. It is not until later that sentences include grammatical construction, to give expressions such as 'Please would you throw me the ball' or 'I am feeling tired'.

Taking Notes

Taking notes performs the valuable functions of:

- * Imposing organisation upon the material.
- * Allowing associations, inferences and ideas to be jotted down.
- * Bringing attention to what is important.
- * Enhancing later recall.

Since we do not remember complete sentences, it is a waste of time to write them down. The most effective note taking concentrates on the key words of the lecture or text. In selecting the key words, a person is brought into active contact with the information. The time which would have been spent making long-winded notes can be spent thinking around the concepts. He is not simply copying down in a semi-conscious manner but is becoming aware of the meaning and significance of the ideas, and forming images and associations between them. This increases comprehension and memory. Because the mind is active, concentration is maintained, and review of the notes becomes quick and easy.

The ability to pick out the most appropriate word as a 'key' word is vital if you want to remember the most important information from any text. We mainly use the following parts of speech when we pick key words:

Nouns: identify the name of a person, place or object. They are the most essential information in a text. 'Common nouns' are whole classes of people or things, e.g. man, dog, table, sport, ball. 'Proper nouns' name a particular person or thing, e.g. Beethoven, the 'Emperor' Concerto, Vienna.

Verbs: indicate actions, things that happen, e.g. to bring, kiss, exist, drink, sing.

Adjectives: describe qualities of nouns (people and things) - how they appear or behave, e.g. old, tall, foolish, beautiful.

Adverbs: indicate how a verb (activity) is applied, e.g. gently, fully, badly.

A key word or phrase is one which funnels into itself a range of ideas and images from the surrounding text, and which, when triggered, funnels back the same information. It will tend to be a strong noun or verb, on occasion accompanied by an additional key adjective or adverb. Nouns are the most useful as key words, but this does not mean you should exclude other words. Key words are simply the words that give you the **most inclusive concept**. They do not have to be actual words used in the text - you may have a better word that encapsulates and evokes the required associations, and a phrase may be necessary rather than just a word.

As an example, suggested key words have been indicated in bold type throughout the following text, starting on the next page. There may be words you do not understand, even when taking account of the context; in this case it is certainly necessary to look these up in a dictionary. Psychological terminology like 'intrapersonal' may not be in your dictionary, but the prefix 'intra' means within, so the meaning can be derived.

Though there is no way to place oneself within the infant's skin, it seems likely that, from the earliest days of life, all normal **infants** experience a range of **feelings**, a gamut of affects. Observation of infants within and across cultures, and comparison of their **facial expressions** with those of other primates, confirm that there is a set of **universal** facial expressions, displayed by all normal children. The most reasonable inference is that there are bodily (and brain) states associated with these expressions, with infants experiencing phenomenally a **range of states** of excitement and of pleasure or pain.

To be sure, these states are initially uninterpreted: the infant has no way of labelling to himself how he is feeling or why he is feeling this way. But the range of bodily states experienced by the infant - the fact that he feels, that he may feel differently on different occasions, and that he can come to correlate feelings with **specific experiences** - serves to introduce the child to the realm of **intrapersonal knowledge**.

Moreover, these discriminations also constitute the necessary point of departure for the eventual discovery that he is a distinct entity with his own experiences and his unique **identity**. Even as the infant is coming to know his own bodily reactions, and to differentiate them one from another, he is also coming to form preliminary distinctions among other individuals and even among the moods displayed by 'familiar' others. By two months of age, and perhaps even at birth, the child is already able to discriminate among, and imitate the facial expressions of, **other individuals**. This capacity suggests a degree of 'pre-tunedness' to the feelings and behaviour of other individuals that is extraordinary.

The child soon **distinguishes** mother from father, parents from strangers, happy expressions from sad or angry ones. (Indeed, by the age of **ten months**, the infant's ability to discriminate among different affective expressions already yields distinctive patterns of brain waves.)

In addition, the child comes to associate various feelings with particular individuals, experiences, and circumstances. There

are already the first signs of **empathy**. The young child will respond sympathetically when he hears the cry of another infant or sees someone in pain: even though the child may not yet appreciate just how the other is feeling, he seems to have a sense that something is not right in the world of the other person. A link amongst familiarity, caring, and the wish to be **helpful** has already begun to form.

Thanks to a clever experimental technique devised by Gordon Gallup for studies with primates, we have a way of ascertaining when the human infant first comes to view himself as a separate entity, an incipient person. It is possible, unbeknownst to the child, to place a tiny marker - for example, a daub of rouge - upon his nose and then to study his reactions as he peers at himself in the **mirror**. During the first year of life, the infant is **amused** by the rouge marking but apparently simply regards it as an interesting decoration on some other organism which he happens to be examining in the mirror. But, during the **second year** of life, the child comes to react differently when he beholds the alien colouring. Children will touch their own noses and act silly or coy [**embarrassed**] when they encounter this unexpected redness on what they perceive to be their very own anatomy.

Awareness of physical separateness and identity are not, of course, the only components of beginning self-knowledge. The child also is starting to react to his own **name**, to refer to himself by name, to have definite programs and **plans** that he seeks to carry out, to feel efficacious when he is successful, to experience distress when he violates certain **standards** that others have set for him or that he has set for himself. All of these components of the initial sense of person make their initial appearance during the second year of life.

(From 'Frames of Mind' by Howard Gardner)

Looking at the marked key words separated from the text, the sense of the passage can be re-constituted:

infants
feelings
facial expressions
universal
specific experiences
intrapersonal knowledge
identity
other individuals
distinguishes
ten months
empathy
helpful
mirror
amused
second year
embarrassed
name
plans
standards

Exercise

Read the [Introduction](#) to 'Transforming the Mind' and write down the words that you consider to be key words. Then from your notes, try to reconstruct the full information of the text. In retrospect, then see if you could have made a better choice of key words. Then choose another text and repeat the exercise. When you practice picking out key words, you will probably find that you tend to take down too many words, 'just in case'. Try to reduce the number of key words, and concentrate instead on finding key words that hold many associations, and which remind you of the meaning of the text.

The more that notes consist of key words, the more useful they are and the better they are remembered. Ideally, notes should be based upon key words and accompanying key images, and incorporate summary diagrams and illustrative drawings. This concept is further expanded in the next article on 'Mind Maps'.

Mind Maps

Meaning is an essential part of all thought processes, and it is meaning that gives order to experience. Indeed the process of perception is ultimately one of extracting meaning from the environment. If the mind is not attending, information will go 'in one ear and out the other'; the trace it leaves may well be too weak to be recalled in normal circumstances. If concentration is applied, i.e. there is conscious involvement with the information, more meaning is extracted, more meaningful connections are made with existing understanding, the memory is stronger, and there will be more opportunity to make meaningful connections with new material in the future.

Associative Networks

Memory is not recorded like a tape recording, with each idea linked to the next in a continuous stream; instead, the information is recorded in large interconnecting associative networks. Concepts and images are related in various ways to numerous other points in the mental network. The act of encoding an event, i.e. memorising, is simply that of forming new links in the network, i.e. making new associations. Sub-consciously, the mind will continue to work on the network, adding further connections which remain implicit until they are explicitly recognised, i.e. they enter the pre-conscious as relevant material, and are picked up by the spotlight of consciousness.

Such associative networks explain the incredible versatility and flexibility of human information processing. Memory is not like a container that gradually fills up, it is more like a tree growing hooks onto which the memories are hung. So the capacity of memory keeps growing - the more you know, the more you can know. There is no practical limit to this expansion because of the phenomenal capacity of the neuronal system of the brain, which in most people is largely untapped, even after a lifetime of mental processing.

Mind Maps

Because the brain naturally organises information in associative networks, it makes sense to record notes about information you want to remember in a similar way. Using the method of Mind Maps, all the various factors that enhance recall have been brought together, in order to produce a much more effective system of note taking. A mind map works organically in the same way as the brain itself, so it is therefore an excellent interface between the brain and the spoken or written word.

Paradoxically, one of the greatest advantages of Mind Maps is that they are

seldom needed again. The very act of constructing a map is so effective in fixing ideas in memory that very often a whole Mind Map can be recalled without going back to it at all. Because it is so strongly visual, frequently it can be simply reconstructed in the 'mind's eye'.

To make a Mind Map, one starts at the centre of a new sheet of paper, writing down the central theme very boldly, preferably in the form of a strong visual image, so that everything in the map is associated with it. Then work outwards in all directions, adding branches for each new concept, and further small branches and twigs for associated ideas as they occur. In this way one produces a growing and organised structure composed of key words and key images (see the previous article on 'Key Words').

Exercise

For more information about Mind Mapping and many examples, visit these web sites:

[BrainLand](#) | [Peter Russell](#) | [Creative Mindmap](#) | [Shared Visions](#) | [Learn Mind-Mapping](#)

When you've got a good reality on Mind Mapping, read through this Speed Reading Course and at the same time, based on your growing understanding, build up a Mind Map displaying the main ideas and how they connect.

E. Visual Reading Techniques

People who find it easy to follow instructions, create a visual movie of themselves doing the task. This enables them to 'see' if more information is required before they begin. Immediate mental feedback creates a trial run which eliminates mistakes before they are made.

Ineffectual reading typically leaves out visually constructed imagery from the thought-stream. As a result the reader has a poor memory and poor contextual analysis skills. Without imagery to 'reality test one's comprehension, one may pass a totally anomalous word and fail to notice that it does not fit. Once the reader has a richly detailed internal picture, which includes colour, sound and movement, he will no longer be able to read past words and concepts that obviously do not make sense, because these will seem strange in the picture or movie that he has made. For example, a student reads: 'The child was made to do the maths problem in front of the class upon the skateboard.' From his prior picture of a classroom, the student will realise immediately that the word should be 'blackboard', instead of skateboard, and will self-edit the word.

One of the characteristics of visual storage is speed, so increasing the pace at which material is covered, with the assistance of speed-reading exercises, usually increases the powers of visualisation. Those students who can adapt to the visual mode of representation successfully are multi-sensory; however, there are some students who have difficulty. These are students who have failed to make the transition between an auditory mode of representation and a visual mode of representation. In normal development this transition occurs at about the age of ten. In the case of these students, retention can be so poor that one sentence later they are unable to remember what they have read. These students will attempt to retrieve the rote sound of words; they will try to store an auditory sequence of the word without transferring the words into pictures in their minds. A student with this problem will frequently state, 'I don't remember what it said.'

It is now known that reading involves both sides of the brain: the left side specialises in coding and decoding, the right side in synthesis of overall meaning. By using this as an operational definition, you can determine which side of a student's brain is deficient when diagnosing his reading ability, and it can be used to formulate a prescriptive plan of how to improve his reading. For example, when a student is able to code and pronounce words disproportionately to his comprehension, his left brain is working in excess of his right brain.

The following technique addresses those students who fall in between the two extremes of the good visualiser and the student who has no visual capacity at all.

1. The first step is to check that you have the ability to picture in your mind's eye. Look at your desk and pretend that this desk is really your bedroom, and that you are on the ceiling, looking down at the four walls and everything contained inside. Mentally point to the wall where the bed is, the walls with windows, the door, the shelves, and so on. Do this exercise again with the layout of the whole house. This exercise will validate that you can make mental pictures of concrete objects, a right-brain skill.
2. Read a phrase or sentence out loud. The sentence is the easiest grammatical unit to use for this particular method. A sentence should be chosen that uses nouns that are concrete and action verbs, rather than abstract nouns and the verb 'to be', as these will prevent the use of right-brain picturing abilities.

As soon as you have stopped reading the sentence, close your eyes and picture in your mind what the sentence described. Notice the colour, size, shape, foreground, and distance of the picture in your mind. This will give you a further idea of your basic capacity to visualise. Used as a repetitive exercise, this will improve your visualisation.

3. Once you can form a reasonably good mental picture from a sentence you have just read, the next goal is to find how many pictures you can hold on to. Read out between 3 and 9 visualisable sentences. If you go beyond your capacity, you will lose the first and second picture. This will tell you your capacity for a sequence of separate pictures. Practice will improve this ability. People who find it easy to create pictures and take in large amounts of information have the facility to take information spread out over several pictures and sequence this information into a movie. When you can do this well, you will have a seemingly infinite memory capacity, taking advantage of the right brain's incredible powers (you will probably have noticed how much easier it is to remember peoples' faces than their names).

Those who have done little visualisation in the past, tend to make pictures which are sparse in detail and poor in quality. They may leave out submodalities, the major components of our senses. A partial list of submodalities follows, under the headings of three sensory systems (modalities):

Visual

shapes
colours
black/white
movement
size
perspective

Auditory

volume
pitch
pace of speech
number of sounds
location of sound
rhythm

Kinaesthetic

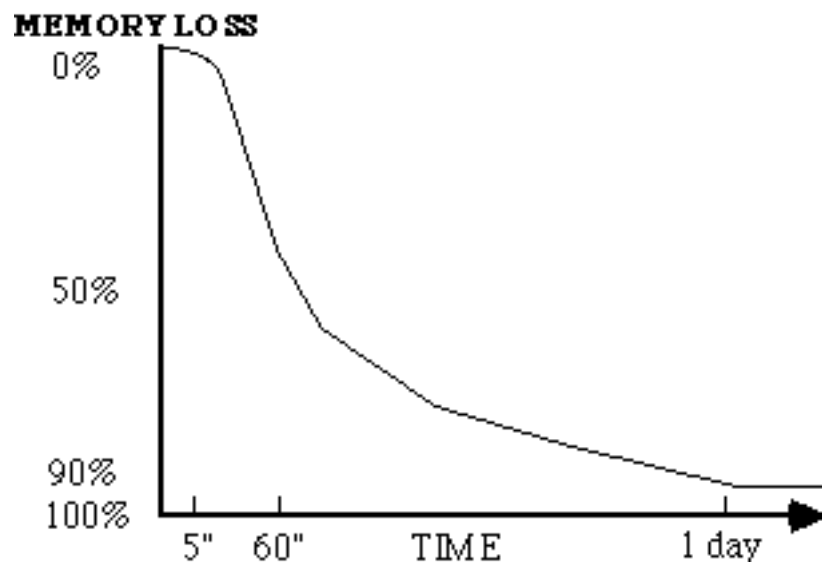
pressure
temperature
emotions
speed of movement
location of felt sensation
texture

When reading a novel, many people fail to make adequate use of auditory imagery, even when they are good visualisers. If you use your auditory imagery to give all the 'he said ...' and 'she said ...' dialogue, then your memory of the story will be vastly improved. When you read a book and use all the forms of imagery, you will experience the story as a three-dimensional movie in stereophonic sound, with imagery of emotion and movement, touch, taste and even temperature. You will be totally at one with the book and your subsequent recall will be nearly perfect. You will hardly be aware of reading the words, unless there is a gross printing error.

It may be difficult to construct concrete images when reading abstract material such as philosophy. A student who has both high right-brain and left-brain capacity will tend to form abstract patterns, rather like modern art, to hang the words and pictures upon. Modern physics has little that can be visualised as concrete imagery, however, when a psychologist asked Einstein about his thinking processes, Einstein replied, 'I think in a combination of abstract visual patterns and muscular sensations; it is only later, when I wish to speak or write to another person, that I translate these thoughts into words.'

F. Defeating the Decay of Memories

The decay of memory capacity is such that an hour after trying to memorise, approximately fifty percent of the facts may have been forgotten. A day later nearly everything related to the memory exercise may have evaporated. A graph drawn to show the way in which people forget would show a sudden, dramatic downward curve starting about five minutes after the attempted memorisation. This assumes that full attention was given to the spoken or written materials, with understanding; obviously if little attention was paid or the material was not understood, there would be little to be remembered! The amount of forgetting passes the fifty percent mark at one hour and falls to 90% after a day. The curve then levels off at about 90 - 99%.



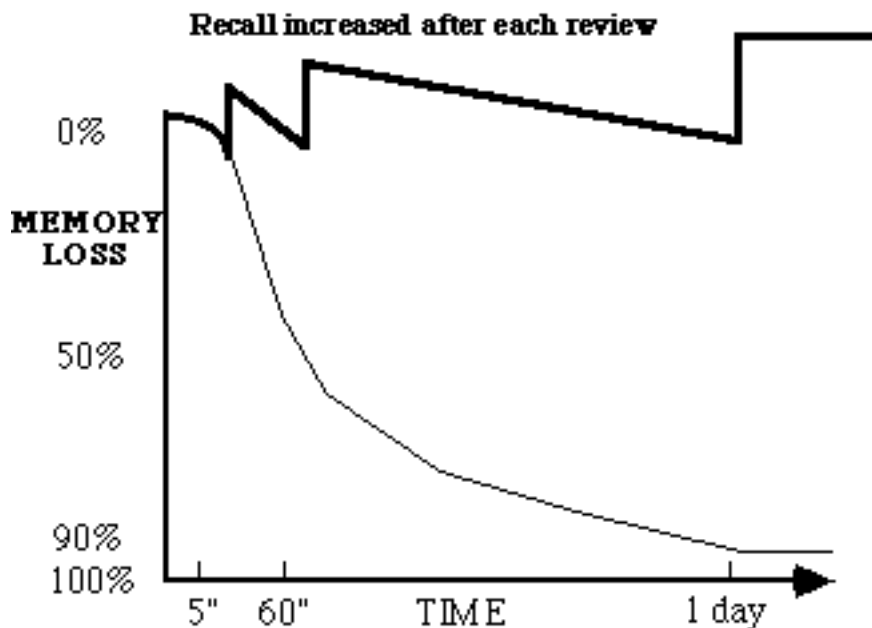
Suppose instead one could turn this curve around and increase the amount of remembered facts with the passage of time. Studies have been carried out by Dr Matthew Erdelyi of New York University which showed that volunteers trying out his ideas, found themselves remembering twice as much information the day after the learning had taken place than five minutes after. From these studies practical techniques have been evolved which enable anyone to reverse the usual forgetting curve and remember things better as time goes by.

The method is as follows. Suppose you have to attend a lecture or meeting where it is not possible to take notes or make a recording, yet it is vital to recall the salient points which were discussed. To ensure effective recall you must set up a programme in your mind which will act as a store for

information. Therefore, as the session proceeds make a mental note of key points which are raised by repeating these subject headings to yourself in numerical order. Repeat this list from the beginning as each new heading is added. In this way you can keep a running total of all the successive points that have been raised. This is possible because your inner thought-stream is much faster than the vocalised speech that you are listening to, so you can fill in the gaps with your review programming. It also helps to accompany each heading with a visual representation of the subject matter, particularly if that image is striking or humorous, i.e. memorable.

Five or ten minutes after the session ends, find a quiet place where you can sit down and relax, then go through these key topics in your mind. Do not worry if in this short space of time quite a lot of the material seems to have been forgotten. Spend a couple of minutes on this exercise and never strain yourself to recall elusive items. Just make an educated guess about anything you cannot recall at that time. Repeat each of the topics to yourself just once and make a written note if you can. This helps the initial neurological consolidation of the memories from short term to permanent long term recordings.

About an hour later, have a second recall session, exactly as before, going through all the topics without undue strain, repeating them to yourself. New aspects and data will reappear by association. The third session should take place about three hours later, the next after six hours, preferably before going to sleep. This makes maximum use of the consolidation occurring during the dreaming process. Repeat the recall procedures three or four times on each of the second and third days, spacing the sessions out evenly through the day.



Matthew Erdelyi found that his subjects recalled information most easily if they were able to call up mental images associated with a particular topic. It seems that the mind handles images, especially vivid and unusual ones, far more effectively than it deals with words, numbers, or abstract concepts. You can make use of this fact by briefly forming a picture of each major topic when it is initially described and later as you review the topic; this will enhance retention and recall.

If you get stuck at any point make use of the picture association to jog your memory. Remain relaxed and think of the first thing that the previous item you were able to remember reminds you of. This should produce an association of some kind that can be used as a trigger, leading on to the next link in the chain.

After perhaps up to ten such links have been pulled out of your mind, one of the missing topics will reappear, like a rabbit out of the conjurer's hat.

Try this review system as an exercise at the earliest opportunity in a real-life situation. Compare the gain in remembered facts with what you were normally able to hold in your mind over a period of three or more days. Your memory and your ability to learn are much, much greater than you may have supposed. The effect of such a review programme is to reduce greatly the rate of forgetting. Instead of the memory dropping off rapidly by about 80% over the first 24 hours, it can be reinforced by reviews at the critical consolidations periods and at subsequent intervals, and it can be raised back towards and then above, that which was initially retained.

The same technique can be applied whenever you study materials that you intend to remember. It may be thought that with continued study of a subject, the reviews would accumulate and take over most of your study time. Actually, this is not the case. Supposing a person studied every day for one hour a day, and in addition set up a review programme for this study. On any one day he would need to review the work from the study session just finished (immediately after, a few hours after and before going to bed), and also material from one day, one week, one month and six months before.

Review of work done:	Time taken:
Same day	5 minutes
1 week before	3 minutes
1 month before	1 minute
6 months before	1 minute
Maximum review time on any one day:	10 minutes

Thus a person spending one hour a day on study would need to spend only a maximum total of 10 minutes a day to complete all the necessary reviewing, and improve his memory many times over. Thus a few minutes devoted to review makes the hours spent studying effective and worthwhile.

When you have acquired the discipline of organised review of previously studied materials, and received the benefits, the procedure will become automatic and easy.