THE CHANGE MEDIATION PROGRAM (CMP)

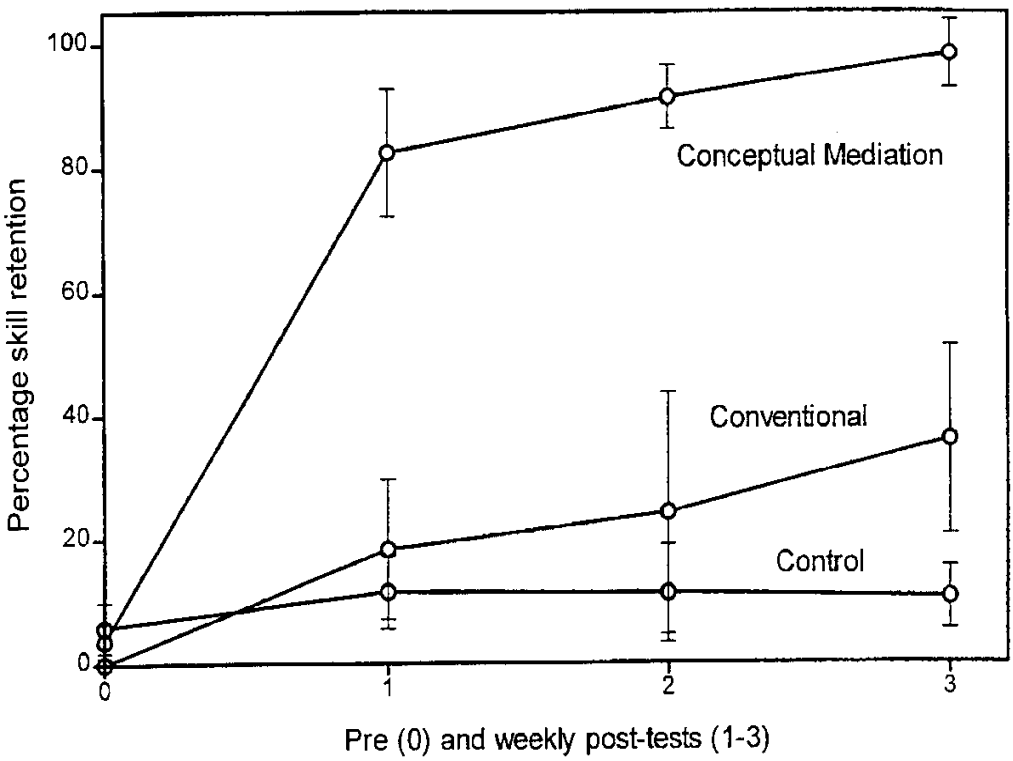
OLD WAY/ NEW WAY ® and CONCEPTUAL MEDIATION™

Dr Harry Lyndon

STUDENT HANDBOOK

It is has been shown that where students and their teachers are taught and use this program that student's learning is significantly improved. The beneficial outcomes of this program are significant improvements in academic results, student behaviour, positive attitudes toward school, time on task, and improved self-esteem. The Conceptual Mediation Program is an application of Mediational Learning Theory (Lyndon 2000).

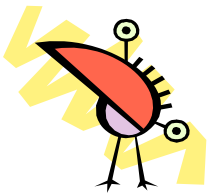
Improvement in skilled performance (mean ± se) using Old Way / New Way versus conventional error correction (based on all available subjects, n = 34)



The graph shows the improved learning outcomes achieved when individuals use a mediational learning strategy to change habits or skills

'How to Take Control of Your Learning'
by Dr Harry Lyndon

Have you ever wondered why sometimes learning seems easy and yet at other times it seems very hard? Then please read on as in this booklet I will share some very important ideas with you about learning and how we can make learning as easy as possible!



When someone asks the question "what have you learnt today?" they are really asking, "In what way have you changed today? What can you do today that you couldn't do yesterday? What do you know now that you didn't know before?"

What is really interesting about trying to measure our *learning* is that we do so by measuring not only how much we remember of something new but also how much we have forgotten about it!

Has anyone ever told you that your brain is designed to forget!

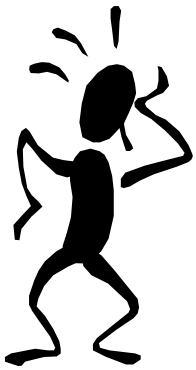
Tick one of these boxes

Yes	
No	
I forget!	

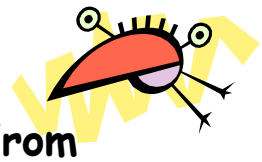
Does your brain do a good job of forgetting for you?

Yes	**No**

What have you forgotten to do recently?



Did you know that there are three ways to learn?



1. Learning from experience

We learn or change just as a result of experience. That means that we can learn just through seeing, listening, feeling, thinking and doing.

Because learning from experience is natural it is very important for us to *take control* of what we learn this way. We can *control* what we learn by carefully choosing what we *pay attention to.*

We are all very easily *distracted.* New sights and sounds are always catching our attention.

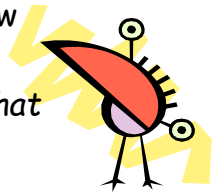
If something *distracts* us, like a loud noise or a bright light, we pay attention to it even though we may not have wanted to. This effect on us is called *involuntary attention.*

As we get older we are able to take more *control* of our attention.

We gradually learn how to deal with distractions by blocking them out. We can then *choose* to give attention to things that interest us. We call this *voluntary attention.*

Giving voluntary attention to someone or something *is not always easy.*

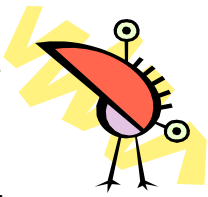
The mental effort given to control voluntary attention is called *concentration.*



Learning to concentrate, or how to control our attention, is important because, *we learn what we pay attention to.*

The changes that occur from experience, like our habits for example are learned automatically.
That means the learning happens all by itself!

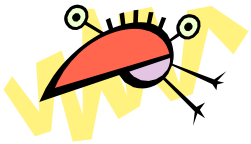
2. Learning from practice



Learning also happens as a result of *choosing* to *practise an activity.* This leads to the development of what we call *skills.*

Skills, like habits, are automatic aspects of our behaviour. Skills are very important because we have controlled their development. Because we have made them by ourselves, using

practice, skills can be used in many more situations than our habits can.



3. Learning by mediating

Changing what we already know however is not so easy. Changing any of our habits, skills or some part of our understanding of something is one of the most difficult kinds of learning there is.

The mediational learning method shows us a new and special way of thinking about learning. It also gives us a special way of practising so that we can change something we have already learned as quickly and as easily as possible!

When we learn this way it means that we practice the differences between an old and a new way of doing something.

YOUR MEMORY AND HOW TO "IMPROVE" IT

Our brain is in charge of the making and storing of our memories.

The brain has two very different ways of remembering things.

These are called *recognition memory*

and *recall memory.*

Knowing how these are different will help us to improve our *control* of memory and learning.

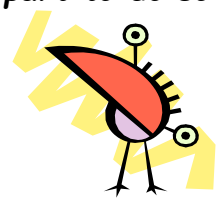
Recognition memory

Remembering that we have seen someone before or when we can easily read words, are examples of *recognition memory* at work. We just *know* how to read a word or know that we have seen that person somewhere before.

The important difference between recognition and recall memory is that recognition memory is totally automatic but recall memory involves a choice and so it is a voluntary use of our memory.

Our recognition memory is automatic so we don't choose to remember things this way.

We recognise many things naturally and without any effort on our part to do so

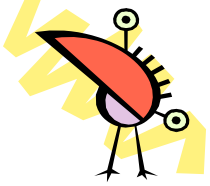


Recall memory

When we remember things that are not present, for example what we did on the weekend or how to spell a word, we are using our *recall memory*. When we spell a word easily, we say that we have *automatic recall* of how to spell that word.

Sometimes it is not easy to remember how to spell a long or unfamiliar word and we call this *effortful recall.*

Recall memory is naturally effortful, but with practice our recall memories usually become automatic.



TAKING CONTROL OF RECALL MEMORY THROUGH PRACTICE

We cannot *improve* our recognition memory because it is *automatic*.

We can however increase the number of things that we *recognise* by learning about new things, people or places.

When we say we want to improve our memory we are really talking about improving our *recall memory*, not our *recognition memory*.

Because we have control over *recall memory* we can improve our recall memory through the practice of what we have learned.

Recognition memory does give us the feeling that we know something after we see or hear it again. But this will not help us in tests, because in most tests we have to use our *recall memory!*

Copying

Some people believe that copying a word, by just writing it five or ten times, will improve their *memory* for that word. They are often surprised and discouraged to find that this is not always true.

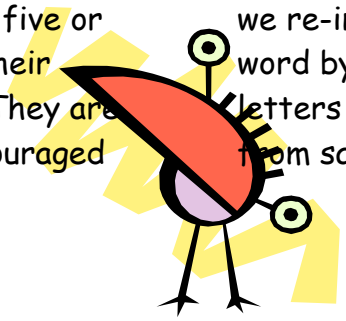
Copying is an activity that uses mainly our recognition memory. This means that we are not practising the *recall* of the word.

So, although copying a word will help us to read it more easily the next time we see it, this will not help us to spell the word. *Never just copy things if you want to remember them later!*

Creativity

Most of the time we write words from memory rather than just copying them. Here then spelling depends on the use of our recall memory. If we have not practised a new word then our recall of it will be *effortful* and we can make simple errors.

Whenever we find a word too hard to remember we stop trying to recall it and instead become *creative*. What we usually do is to say the word to ourselves. Then, we re-invent the spelling of that word by using the sounds and letters we hear and *recognise* from saying the word out loud.



Because most English words are not spelt the way they sound the chance of being correct using this approach is very low.

We can avoid the problems of effortful recall and 'invented' spelling by the use of a good recall memory strategy like the

LOOK

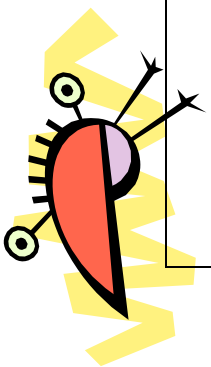
SAY

COVER

WRITE

CHECK

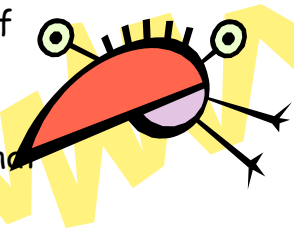
X 5 METHOD



Using the "look say cover write check" method to learn the spelling of a word.

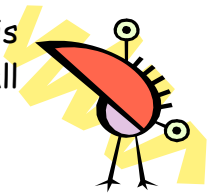
This method is an interesting example of how practice influences recall memory.

[a] ***Look*** carefully at how the word is written. ***Say*** it and tell yourself what it means. Doing this starts your practice for the recall of this word.

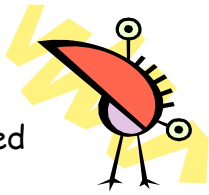


[b] ***Cover*** the word over so that you cannot see any part of it. This will stop your recognition memory from working. This is so you remember it using only your recall memory.

[c] ***Write*** the word down as best you can from recall memory. Sometimes it will be easy to write down all the letters of the word in one try. Sometimes it will be hard. Don't worry if the word is too long for you to remember all the letters on your first try.

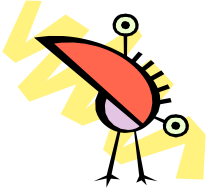


[d] ***Check*** the spelling of what you have written by uncovering the word. Check to see that you have written the word correctly; if it is incorrect then pay attention to the differences. Tell yourself what they are or underline any missing letters. If you have added any letters, just cross them out.



When you check your spelling this way you are using recognition memory.

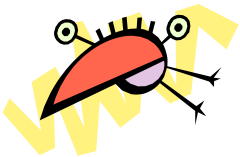
[e] Repeat this process another four times. Even if you have written the word correctly from *recall memory* the first time, do not stop there!



Leaving letters out or adding a few of our own, only means that we need to keep practising our recall of the word until we have correctly done so five times, this won't always be five correct spellings in a row.

Practising the recall of a new word once or twice is usually not enough to develop good recall. This just helps us to recognise the word. But practising new words three or four times will start to make the recall their spelling much easier.

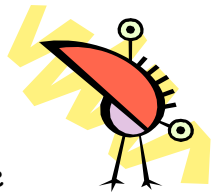
But practising the recall of a new word five times is usually enough to make the recall of this word automatic.



It is a good idea to make sure that the spelling of new or difficult words becomes ***automatic***. So, practise the recall of new words using ***Look Say Cover Write Check*** until you have correctly recalled them *five times*.

[f] Sometimes words are too long or too hard to get right the first time. *Don't worry, this is quite natural, so just keep on trying till you get it right!*

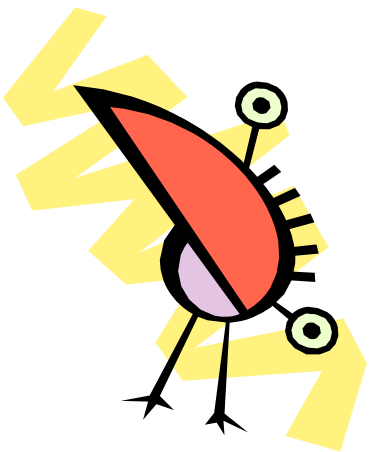
Using L.S.C.W.C is a very good way of helping you to take control of your learning!



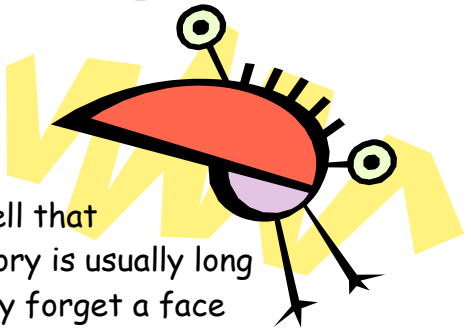
Good spellers know the importance of practising their recall of what they want to spell.

In a study of good spellers learning new or unfamiliar words it was found that they *didn't just copy* words they were learning to spell.

One student left a line between each repetition of the word as she practised it. She began by looking at the word once and then wrote it from recall memory. When asked why she had left a line between each repetition she said, "That's so I can't see the word as I write it!" She was successful because she used recall memory when she practised. Another student wrote his word on the opposite side of the page, again *using recall and not recognition memory.*



THE BRAIN IS DESIGNED TO FORGET



There is no doubt that our brain forgets. In fact it does this very well and it does so naturally.

Many people talk about forgetting as if it was the same as losing but of course it is not really the same. It is possible for us to lose memories but it is more usual that we just *can't find them* when we need them!

A common experience that makes us believe we lose information from memory is forgetting to buy something that you wanted when shopping.

We forget because we don't practice our recall of the list of things we want to buy. We will remember the item again when we get home or look at our shopping list.

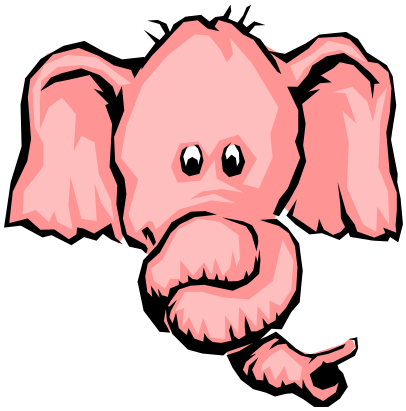
Unpractised memories are only available to us through recognition memory.

We know very well that recognition memory is usually long lasting. We rarely forget a face even after only a short time spent with that person!

Forgetting is really a very complex brain activity involving the organization and storage of our experiences as memories.

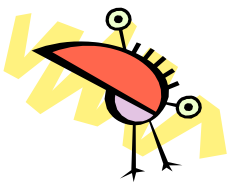
Our brain has two quite different ***rates (or speed) of forgetting,*** There is a **slow** rate of forgetting and a **fast** rate of forgetting. Knowing the difference will help us take *control* of our forgetting.

Memories that have been practised are available to us through *recall memory.*
We know that the more we practise something (using a good recall strategy) the easier it becomes to recall that memory.



Say that we have learnt a complex new skill like playing a piece of music, how to solve a difficult puzzle or how to spell an unfamiliar word. As soon as we stop practising the new skill, we slowly but surely start to forget what we have learned. Gradually we just find it harder and harder to remember. Normal such forgetting takes weeks to change the new skill to one that can no longer be used easily. It can only be recognised!

But we don't just lose this memory it only gets harder to recall, until finally we can only do it effortfully. But if we begin to practise this skill again our *relearning is much easier and faster than before.*

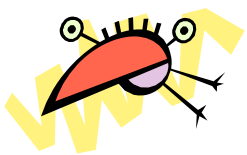


Our brain has clearly saved something of what we originally learned, practised and then forgotten!

We can take control of this kind of forgetting just by regularly using the things we want to remember!

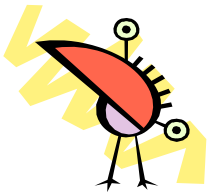
Sometimes when we learn something new, or have to relearn something, for example, how to spell a word a correctly, we experience *accelerated forgetting.*

This type of forgetting *takes only seconds, minutes or hours to work* instead of days or weeks, as is the case with normal rates of forgetting.



The amazing process of accelerated forgetting starts whenever we try to learn a new way of doing something which conflicts with our own way of doing something.

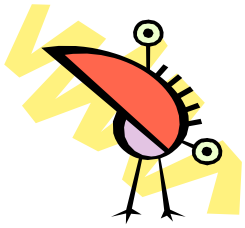
If someone spells the word 'said" in their own way, e.g., "sed", then that person's attempt to learn the correct way of spelling the word will lead to *confusion*.



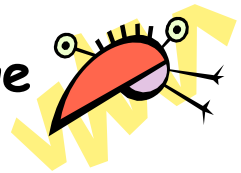
To prevent ongoing confusion the brain rapidly starts to forget the correct way of spelling the word.

But, of course, this doesn't help us much we actually want to remember the correct spelling.

To take control of this accelerated rate of forgetting we can to use the Old Way/New Way method.



Using Old Way/New Way to change spelling habits



If you would like to help a friend improve their spelling of a word then this is what you can do.

(1) Ask them to spell the word their own way. Then ask if you can call this the "old way" of spelling the word.

(2) Ask them if you can show them a "new way" of spelling the word. When they agree then:

(3) Show them the "new way" and together talk about the differences between the old way and the new way of spelling the word. This is when they learn the difference between their old way and their new way of spelling that word.

(4) Then ask them to spell it again their old way. It is important for them to repeat their *own way* of spelling a word before they try the new way of spelling the word.

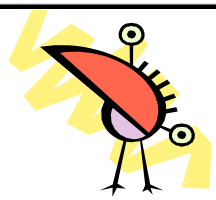
This is what it might look like!

NAME Christopher Andrews DATE 25.6.96

WORD sed said

OLD WAY	NEW WAY
sed	said
sed	said
sed	said
sed	said
sed	said

I said
he said
she said
dad said
mum said
my brother said great !

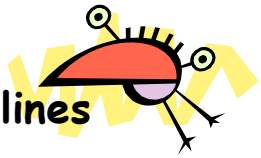


(5) Next ask them to write the word in the *new way*. Then ask them to tell you the difference between the old and new ways of spelling the word.

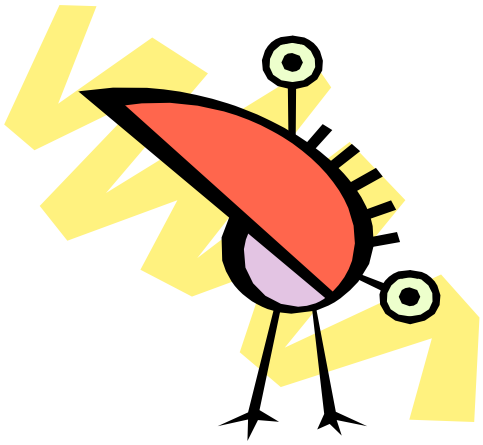
(6) This special kind of practise is repeated again four more times.

(7) The new way must now be practised six times. They can

simply write the word six times or put the word into a sentence.



Spelling guidelines



(1) At step 1: if the person writes the word correctly, tell them that this is the 'new way' and that sometimes they use a different way of spelling the word. Get them to write it the old way or show them how, and then ask them to write the word this way. Call this the 'old way' and go on with the activity.

(2) At step 3: if the person writes the word correctly, tell them that this is a new way and ask them to write the word in the 'old way' please!.

(3) At steps 4 and 6, if the person writes an 'old way' for a 'new way', tell them this and ask them to use the new way instead. Talk about the differences once again.

(4) Practising the differences five times and using the new way six times makes up one 'old way/new way' trial.

(5) Usually we would wait about two weeks before doing a complete trial again, if it was needed. In the meanwhile any 'old ways' should be corrected and the differences described once again.

The importance of homework:

We cannot understand learning until we understand forgetting.

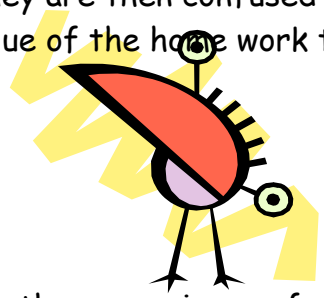
Earlier we described learning as the changes arising in us as a result of practice, through the mediation of prior learning or simply through experience.

The brain however is also designed to forget. But forgetting is not simply a process of loss or decay of a memory but is in fact a process of *retrieval inhibition.* By this we mean that a memory becomes harder and harder to remember.
What was a fresh and interesting experience minutes, hours or days before, becomes what we call a faded memory.

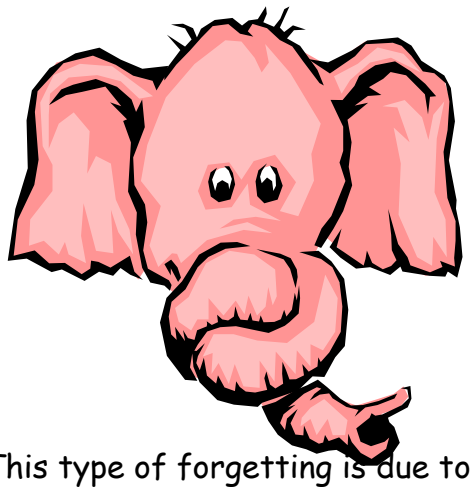
We are often misled by our natural capacity to recall items after re-experiencing a situation. It is also our experience that such recall is often *temporary.*

Many students complain that they do not get any benefit from their homework and to some of them it appears as just "busy work", something imposed on them by their teachers or parents, something that just wastes their time.

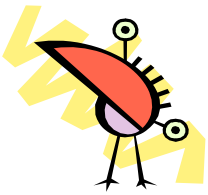
Other students complain that despite doing their homework their test results don't improve. They are then confused as to the value of the home work they do.



Another experience of students is that their mind "goes blank" during an exam. They find that they just can't remember what they practised the night before.



This type of forgetting is due to a normal function of human memory when students don't practice or mediate their recall memory!



Learning Traps

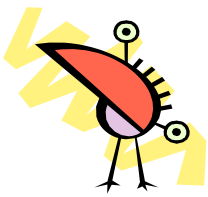
Trap 1. The limitations of recognition memory

Sometimes students will say "But I already *know* that. It's *boring!* Why do I have to *practise?*"

Recognition memory is an automatic capacity of the brain. It arises simply from the learning that occurs from any of our experiences. When you read or re-read a passage in a book only recognition memory is at work.

Recognition memory is automatic so as we read the book we get a *false* sense of "knowing" which leads us to believe that we *don't need to practice any further!*" *But* we later find that this was not true.

We must practice our recall memory directly. *So what should we do to take control of our learning?*



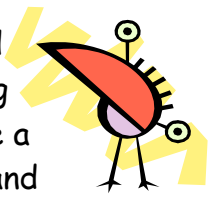
- We should: *not* rely on *recognition* memory. *A* memory stored at this level needs us to re-experience the same or similar situation to let us remember!

- Be aware that during a lesson teachers are often only able to teach to a level of *recognition memory.*

- Even if we are taught only to a recognition memory level we will actually be tested for our ability to *recall* what we have learned.

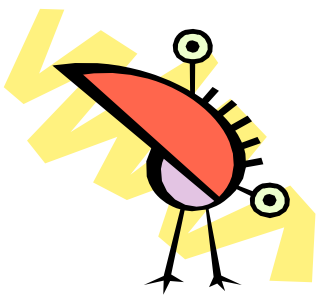
- We should then use *practice and mediation to control our memory!* This will often need to be done as *homework.* Only practice and mediation will stop us from experiencing "memory blackouts" during tests.

Trap 2. Reading and copying as a learning strategy



Reading through the required text for homework and taking notes as you go may seem like a useful strategy for learning and indeed it is a very good starting point.

However, reading as a skill and the copying of notes from a text all involve *recognition memory* Taking control of the recall memory process by *practising recall* will give you good test results.



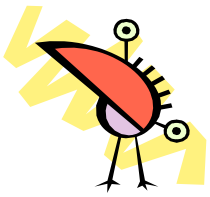
We can use the ideas discussed under the Look Say Cover Write Check approach to improve our recall of what we are learning.

- Read the passage as carefully and as quickly as you can and make a note of any important point. Make only brief notes and avoid simply copying the notes you make. Instead, try to put things in your own words. Then,

- *Cover*, i.e., hide from view, the passage just read and the notes you have taken and *recall* as much of the *meaning* of the passage as you can and write down as many ideas from your notes as you can recall. You will find that after the first reading and note taking that your *recall* will be very limited. This is *natural*. Then,

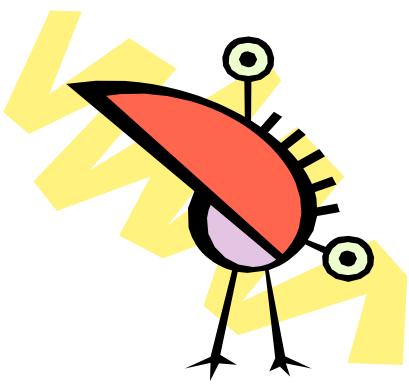
- *Repeat this whole process at least another two times!* You will discover that your reading speed increases on each repetition.

- Your *understanding* of what is being read and what is important will also *change* greatly. When you attempt to recall the important points these will be easily recalled. You can then go to sleep knowing you have practised your recall memory and that you will *not* experience a mental blank next day during a test.



Trap 3. Accelerated forgetting

This is the fast rate of forgetting associated with recognition memory and also with the effects of a conflict between our old and new ways. Use the Old Way / New Way method to help here!



General Procedural Sequence for Conceptual Mediation

(i) Ensure that students develop competency in the cognitive strategies described, above which they will apply to the learning for understanding of science concepts.

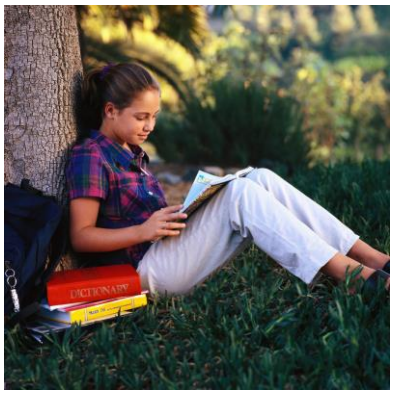
(ii) Having selected a topic, elicit the students' associated knowledge, beliefs and ideas raised by this topic. This can be achieved in a variety of interesting ways such as small group or whole-of-class brainstorming sessions, small-group discussion and poster preparation (for later class presentation), the preparation of concept maps or more simply by the written response of students to a pre-test on the topic. The construction of a suitable pre-test can be guided by the review of research on students' misconceptions in Driver et al., (1994). The records of these activities are retained by the students and or the teacher for use during future teaching and mediational phases of the program.

(iii) Prior to the presentation of a new theory, particular attention is given to the scientific terminology that will be presented during the explicit teaching of the theory. Wilkinson (1999) has argued that it was essential that the student's own understanding of important terms be elicited and clearly differentiated from the scientific use of these terms. Wilkinson's position was derived empirically during his twenty-five years of teaching prior to his involvement with conceptual mediation, and his perspective is clearly supported by the research of Gilbert (1985), Vygotsky (1987), and Sutton (1992, 1999). The active differentiation of words used in a scientific manner from their common sense usage has become an important aspect of the program, and is now considered to be a necessary condition for the mediation between students' understanding and of the main concepts associated with a particular topic. For example, students' problems with the general notions of force and motion are greatly facilitated by the prior differentiation and mediation between their own and the scientific use of terms such as acceleration, speed and velocity. Some teachers have found it an unusual step to present word lists as a pre-condition to the teaching of a new theoretical framework.

However, in this we are also guided by Ausubel's notion of advanced organizers (Ausubel, Novak Hanesian, 1978). In this instance we are applying the notion very broadly to include the terminology that students will meet in the teaching of the better theory, and that we anticipate they will find confusing.

(iv) Next, explicitly teach the new theory and provide opportunities for students to rehearse important aspects of the theory. This enables later comparison with the old perspectives that are initially presented to the class by the students themselves.

(v) Having elicited students' preconceptions, differentiated commonsense from scientific use of terms, then taught and demonstrated the scientific theory, we are finally in a position to undertake the formal process of conceptually mediating the alternative frameworks. The fact that we have explicitly taught the new theory and also differentiated the appropriate scientific terms from their commonsense foundations is no guarantee that the students will be freely able to recall the relevant scientific ideas. This problem is not one of teachers having inadequately taught the scientific theory, it is instead a problem arising from a conflict in understanding; it is this conflict which leads to accelerated forgetting. This issue, we have argued, may best be resolved through the process of conceptual mediation.



Conceptual mediation involves a progressive process of differentiating old ideas from the new. It is essential for the resolution of the natural phenomenon of accelerated forgetting that the teacher and students undertake a formal practice of the differences between old and new theoretical perspectives. The "old theory", being the student's perceptually constructed preconceptions and alternative conceptions, must

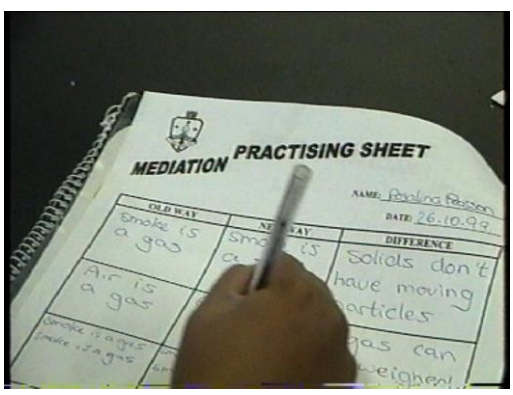
necessarily be reactivated prior to and during conceptual mediation. At this stage in proceedings, the material collected during the elicitation of students' ideas can be presented again to facilitate discussion of their "old" perspectives.

The recall of the new theory, and the active differentiation of the alternative perspectives, is repeated in a progressive manner five separate times. By the term "progressive" we mean that when this reflective process is undertaken by the class or by an individual there is a growth in the individual's awareness of how the alternatives differ. There is importantly, also, a corresponding increase in the capacity of the individual to articulate similarities and differences.
As has been observed in other applications of the mediational process, at least three progressive differentiations are necessary for the re-direction of the accelerated forgetting effect to be initiated. This re-direction of the retrieval inhibition from the old to the new knowledge is consolidated over the following two differentiations.

(vi) Once the formal mediational process is completed, the new theory is then generalized to at least six novel applications or problem solving situations.

(vii) The use of a formative test/summative test evaluation strategy has proved to be a useful way of demonstrating to students the value of conceptual mediation. Students readily observe the difference in learning outcomes of either using practice or using mediation for correcting errors made during formative testing of a subject. The CMP promotes the independent use of conceptual mediation by students as a homework strategy to deal with any remaining problematic issues. Specific recommendations are made in the CMP training manual regarding homework and its important role in learning (see Appendix ten).

The conceptual mediation program offers students the opportunity to adopt a metacognitive perspective and to learn specific cognitive skills that facilitate learning for understanding.



About CMP and this booklet.

Children's natural interest in their personal experiences of learning, memory and performance is a ready starting point for new experiences and ideas about taking control of their learning and becoming independent mediators of change. The CMP builds on their existing interest, knowledge and skills. It extends their knowledge such that they become successful and motivated learners. By encouraging students to take an active role in sharing personal experiences and understandings, the program permits confirmation of significant pre-existing ideas and the introduction of relevant new concepts dealing with the nature of learning, memory and performance.

N.B. This handbook does not stand-alone; it serves as a reminder of the important ideas presented to students by their teachers as part of the CMP. The CMP when taught by teachers initially takes the equivalent of four lesson periods. Further time is taken as needed over the year to consolidate the important learning strategies that are presented as part of the Conceptual Mediation Program.