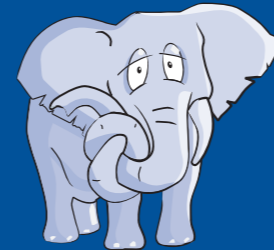




Maximising your memory

A guide to understanding how memory works

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foreword

Foreword

Memory is a complex process. This booklet has been produced in response to frequent requests for information and helpful techniques to improve everyday memory performance. It provides an introduction into the processes and structure of human memory, and provides practical ideas for getting the most from your memory.

Everyone can experience memory lapses from time to time, for example forgetting the name of somebody or a telephone number. A variety of things can cause us to forget, these are outlined in this booklet along with practical tips to help you get the most from your memory.

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memory

What is memory?

Memory is an active process which is continuously building upon and expanding a knowledge base of facts and information. Memory has a number of functions in our daily lives, for example it acts as a personal organiser storing information on the things that you need to do in the future, i.e. remembering to meet a friend at 2pm.

memory

How does memory work?

There are three processes involved in memory: *encoding, storage and retrieval*. Encoding involves the learning or acquiring of new information; memories are then stored in the memory system and retrieved at a later stage. Our memory system is a bit like a filing cabinet; information is actively *collected, stored* (filed away) and later *retrieved* (accessed).

Encoding

The initial taking in / learning of information

Storage

The retention of information within the memory system

Retrieval

Accessing the information from memory



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Memory stores and procedures

Memory consists of three stores sensory memory, short-term memory (also referred to as working memory) and long-term memory.

The long-term memory store is further divided into a semantic memory store, an autobiographical / episodic memory store and a procedural memory store. Each memory store has a different role; these are summarised in the table on the opposite page.

If you think of memory as a filing cabinet, then each of the different memory stores (sensory, short-term & long-term) can be thought of as representing a separate drawer in the filing cabinet.

Sensory Memory

Short-Term Memory

Long-Term Memory

Sensory Memory

This store is the first port of call for information experienced. The sensory memory store holds auditory or visual information for a very brief period of time (maximum 3 seconds).

Short Term Memory (STM)

This store holds memories for a short duration (maximum a few minutes). The short-term memory store is only able to hold between 5 to 9 pieces of information at any one time, this is known as the 'memory span'. STM is also referred to as the working memory store, this is because information within the store can be actively manipulated and worked upon. This store can be thought of as an internal note pad where information is jotted down and edited.

Long Term Memory (LTM)

The LTM is a permanent store for memories. The long term memory store is further subdivided into a semantic memory store, an autobiographical memory store and a procedural memory store.



memory

Why do we forget?

Semantic Memory Store

Contains factual information; it is like an internal encyclopaedia, storing all factual knowledge e.g. the capital of France is Paris.

Autobiographical Memory Store also referred to as the Episodic Memory Store

Contains information for personal event-based information such as details of holidays and what you did last weekend. This memory store is like an internal diary, keeping track of life events.

Procedural Memory Store

Contains skill-based knowledge, for example the steps involved in playing the piano, riding a bike or driving a car.

We all forget a number of different things, including things from the past e.g. where we went on holiday last year. This type of forgetting is known as *retrospective forgetting*. People can also forget things they need to do in the future e.g. forgetting to attend a doctor's appointment; this is known as *prospective forgetting*.

Forgetting can occur at any one of the three processes of memory:

- At the *encoding stage* when information is not processed sufficiently.
- At the *storage stage* when information is lost from the memory store.
- At the *retrieval stage* when information is stored in memory but cannot be accessed.

It is important to remember that the memory system is not simply a videotape recording of events that happen, therefore to make sure things are remembered it is important to pay attention to them.



Everyday examples of forgetting and memory blanks

- Forgetting names of people & objects
- Forgetting to attend appointments and meetings
- Forgetting telephone numbers & / or to pass on telephone messages
- Failing to take medication on time
- Forgetting items needed from the shops

Causes of forgetting

- Not paying full attention to the information
- Interference from information already in the memory store
- Interference from new information entering the memory system
- Stress, illness, anxiety & depression
- Head injury
- Diseases such as dementia



memory

Maximising your memory performance

In order to get the most from your memory it is important to understand how your memory works. Pages 2-5 outlined the various processes and stages in memory.

If we return to the filing cabinet example of memory and think about how information is stored within a filing cabinet, this can help us to understand why information is forgotten. For example, if we simply scooped up everything we needed to file and placed it randomly in the filing cabinet drawer, when we later came to access a single piece of information the retrieval of this information would be made difficult by the unorganised filing system. However, if the information was put into the filing cabinet in a neat and orderly manner (e.g. in the correct files), then later retrieval of the information would be much easier and efficient.

This process holds true for memory processing; the key ingredients to successful memory are paying full attention to the information you want to remember and approaching tasks in an organised, logical and calm manner.



memory

Tips and techniques for a better memory

There are a number of simple everyday ways to improve memory performance. A number of tips and techniques to help you get the most from your memory are listed below. They form three categories: 1) External Memory Aids, 2) Memory Improving Strategies & Mnemonics and 3) Healthy Lifestyle. Not all of the tips listed will be helpful to everyone; we recommend that you try a few to see which ones work best for you.

1 External Aids

External memory aids can be extremely helpful as memory prompts, examples of effective memory aids are listed below:

- Notebooks and lists to assist with remembering errands such as items required from the shops.
- Post-it-notes placed in strategic places to prompt remembering, e.g. on the front door as a reminder to take keys, or to check the back door is locked.
- Diaries & calendars, to aid remembering of appointments.
- Wall planners & notice boards, for messages and reminders.

- Electronic devices, e.g. an electronic organiser or a dictaphone where information can be recorded and played back later, e.g. "I parked my car on floor 3B".

2 Memory improving strategies & mnemonics

- Be aware of the limitations of your memory, for example the short-term memory store has a limited capacity and can only contain a maximum of 9 pieces of information at any one time.
- It is possible to remember more information by grouping items of information together for example, remembering a phone number as 01225835866 is more difficult than if the number is broken down into smaller chunks e.g. 01, 225, 835, 866.
- Concentrate on one thing at a time, do one thing properly rather than two or three things poorly.
- If information is processed deeply, e.g. thinking of as many associations between the new information and existing information in memory, it is more likely to be remembered. This technique is helpful for remembering a person's name.
- Use **mnemonics** to help you remember. Mnemonics are memory tools which aid remembering. There are a wide variety of strategies including the *method of loci*. The method of loci technique can be used to help remember shopping



lists, for example to remember to buy a newspaper, apples, shampoo, milk, imagine these items around the house, e.g. imagine the newspaper by the door, the apples and the milk in the kitchen and the shampoo in the bathroom. At the shops, simply mentally retrace the image of the items around the house, e.g. the newspaper by the door, apples in the kitchen etc.

- Another useful mnemonic is association, where items to be remembered are linked together visually in the mind. For example if you had to remember apple, monkey, balloon, table, you could place the things on top of each other or visualise them interacting with each other. For example imagine the monkey holding the apple and the balloon whilst sitting on the table.

3 Lifestyle

It goes without saying that what is good for the body is generally good for the mind.

- Get a good night's sleep if you are tired it is harder to concentrate on tasks and this will lower your ability to remember things.
- A balanced diet with fresh fruit and vegetables will ensure the right vitamins and minerals are received.
- Smoking and excessive use of alcohol are risk factors for memory problems and should be avoided. However alcohol in moderation may actually be beneficial.

- Take regular physical and mental exercise. Exercise increases the amount of blood flow & oxygen reaching the brain.
- Research suggests that the more that you use your memory the less likely it is to decline in later life. Try to keep as mentally active as possible, e.g. reading, doing crosswords.
- Make things simple; reduce the number of things that have to be remembered, for example pay bills by direct debit and use a list or wall planner to prompt remembering.
- Minimise stress & anxiety; high levels of stress have been shown to have a damaging effect on the memory areas of the brain.
- Feeling down or depressed reduces the ability to think clearly, which subsequently disrupts memory abilities. Discuss persistent depression or low moods with your GP.
- Find time to relax e.g. through a hobby or through joining a relaxation class.
- Make the home environment as memory friendly as possible. Leave reminders around the house for things that are regularly forgotten, e.g. 'remember keys', 'turn off cooker', 'post the letters' etc.
- Be organised, always place important items such as keys in the same place, e.g. by the front door.



memory

What is RICE?

RICE is the Research Institute for the Care for the Elderly. RICE has a dedicated team of researchers, including doctors, nurses and psychologists, all committed to the care and welfare of older adults. RICE is recognised internationally, particularly for its research into memory problems, Alzheimer's disease and dementia. RICE holds a number of memory clinics from Community Memory Screening Clinics in Bath and Wiltshire, to a Main Memory Clinic held at RICE. A programme of education and support is offered to people caring for a loved one with dementia.

How You Can Help.

RICE is a charity, its work relies on voluntary donations. If you would like to support the work of RICE, please complete the attached donation form and return to RICE, FREEPOST SW11183, BATH BA2 5ZZ.

support

I want to support RICE with its important work

I would like to make a gift to RICE (cheques payable to RICE) of;

£10 £25 £50 £100 £250 Other £

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| Title: | Name:..... |
| Address: | |
| Postcode: | Tel: Email: |

Standing Order Form

I would like to set up a standing order for

£5 £10 £15 £20 Other £per month

| | |
|-----------------|-------------------------|
| Title: | Name:..... |
| Address: | |
| Postcode: | Tel: Email: |

| |
|--|
| Name of Bank |
| Sort code / / Account Number |
| Bank Address: |

Please start my standing order on.....(d).....(m).....(y)

| | |
|----------------|------------|
| Signature..... | Date |
|----------------|------------|

Bank Instructions: Please pay the above amount on the stated date to The Research Institute for the Care of the Elderly, Account No 53486250, Sort Code 16-57-10, Cater Allen Private Bank, Sovereign House, 16-22 Western Road, Romford, Essex RM1 3SP

PLEASE SEND THIS FORM TO RICE NOT TO YOUR BANK



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This is to confirm that I wish the above named charity to treat all donations I have made since 6 April 2000, and all donations that I make from the date of this declaration, until I make a notification to the contrary, as Gift Aid ones.

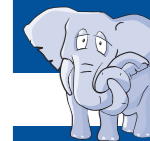
Signature Date

PLEASE NOTE:

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- *You may cancel this declaration at any time by notifying RICE – it will then not apply to donations you make on or after the date of cancellation.*
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- *If you are unsure whether your donations qualify for Gift Aid Tax relief, please contact RICE or your local tax office for leaflet IR 113 Gift Aid.*

- Please send me information about RICE Carers' Courses/Memory Clinic
- I would like to know about RICE events and fundraising ideas
- I would like to know how to leave a gift in my will to RICE

Please send this form to: RICE, FREEPOST SWB11183, BATH BA2 5ZZ.





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