# Why do we forget?

Can you remember the capital of France? Or what happened in last week's *EastEnders*? Or what you ate for lunch exactly 1 month ago? **Andrew Dunn** considers different explanations of forgetting

Few psychologists think of human memory as a perfect recording of past events. Certainly we can record, store and recall accurate facts about our world (e.g. what's the capital of France?). We can remember life events (where did you go to primary school?) and memories of all kinds can last a lifetime (once you learn to ride a bicycle you never forget). However, there are natural limits on how much we can possibly sense and then process.

Moreover, human memory is imperfect, and is subject to change. For example, learning new information changes and sometimes prevents access to what we already know (called *retroactive* interference). What we already know helps us to learn (because it gives us prior understanding and reference), but it also colours and changes new material that we are learning (called *proactive* interference).

## Distorted memories: a kind of forgetting

Sir Fredrick Bartlett (1932) called learning and remembering, 'memory after meaning' because:

1 when you learn something you distort it with what you already know as you seek to understand and consolidate it

2 when you later recall something, you distort it because you actively recreate that memory out of many other memories

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**Signposts**

interference, false memory, eyewitness testimony, hippocampus, amnesia

### Box 1 Memory after meaning: an activity

You can demonstrate 'memory after meaning' yourself. First watch a television programme/film, then shortly afterwards (but not straight away), write down as much as you can remember about what you saw. Then, each day throughout the following week, repeat this. Make sure that each recollection is kept separate from the last one, and that you don't look/listen back to what you previously reported.

At the end of the week (or longer), look at what you wrote on the first day and subsequent days and (if you are able) watch the original programme again. You will see that things start to subtly change. While the basic theme of what you saw will be there, some details will be lost, some suddenly appear and others change.

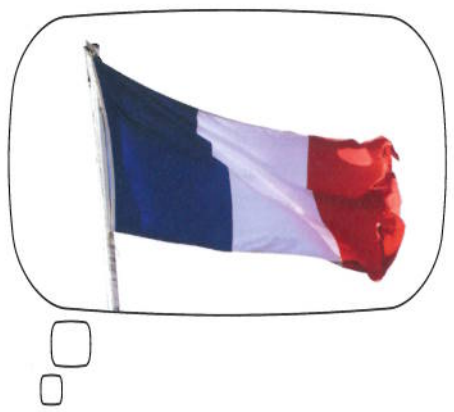
Over longer periods (try recalling the television programme after 6 weeks), the loss and change can be quite dramatic.

Try out the activity in Box 1 to understand this distortion.

Over long periods of time (weeks, months, years) quite dramatic changes can occur. In some cases, completely false memories will begin to emerge. Indeed, Elizabeth Loftus has shown that many of our most treasured (autobiographic) childhood memories may not actually be real. This is because we naturally amalgamate all sorts of information about ourselves (e.g. other people's stories, photographs, video footage) and the world (e.g. factual events, real world facts) to form a recollection that becomes real to us, even though we could never have actually experienced it as we remember it. One famous case of witness false memory leading to a miscarriage of justice is the Ronald Cotton case, see Box 2.

### Box 2 The case of Ronald Cotton

Jennifer Thompson was attacked twice at home in July 1984. Later she was able to identify Ronald Cotton as her attacker and he was sentenced to a life sentence plus 54 years for rape and robbery. Jennifer was certain about who she had seen and who had attacked her. She had a clear and absolute memory of who it had been. However, in 1994 Ronald was released on DNA evidence, which showed he could not have been her attacker. It turns out that Jennifer had confused Ronald with the real culprit after looking through a book of mugshots (that actually contained the real culprit). Once her memory had been fixed it became real to her. In fact, even when the real culprit was presented to her in an earlier appeal trial, she did not recognise him, believing instead that Ronald had been the one responsible (see 'Interview with Elizabeth Loftus', Psychology Review, Vol. 19, No. 1, pp. 32–33).





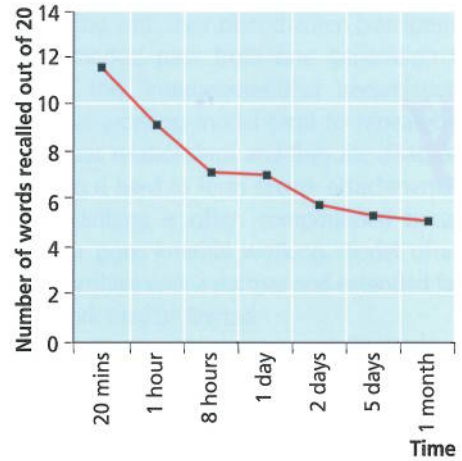



**Figure 1** A typical forgetting curve

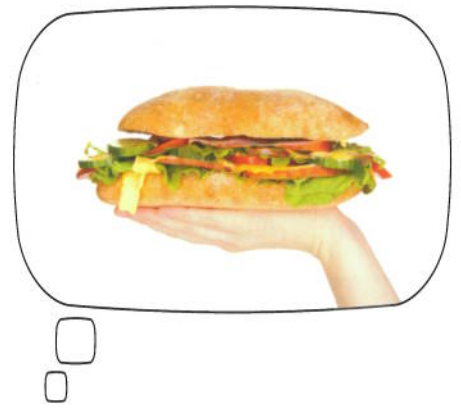
## Rate of forgetting

So, memory is fragile, but it also decays. Herman Ebbinghaus (1886) demonstrated just how quickly, or slowly, information decays over different periods of time. Look at Figure 1. You will see that the rate of forgetting (in this case, number of words recalled from a word list) follows a predictable path. Initially you forget quite quickly but then forgetting slows down until it eventually levels off.

The rate of forgetting (or remembering) is influenced by how strong the trace memory is in the first place and can be influenced by a variety of factors.

### Nature of the information

The more interesting and familiar the information the stronger the memory trace. For example, if you love football or you are really into music, you will easily pay attention to every detail of your favourite team or artists because it engages you. At the same time, you amass a huge amount of information that will help you to integrate and reinforce new and related memory information. So if you want to improve your memory for exams, then make your learning fun and meaningful



(e.g. link concepts together using examples that mean something to you personally).

### The extent of organisation

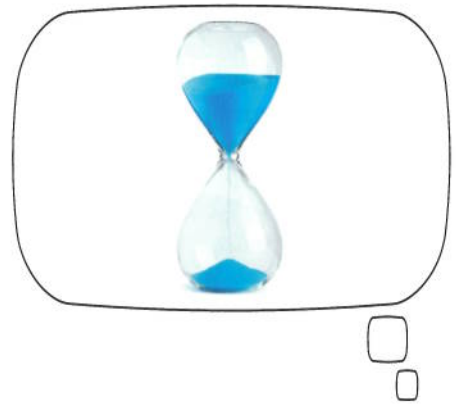
Information is more easily lost or confused if there is too much to remember and/or it is disorganised. For example, you wouldn't try to learn all your friends' email addresses all at once and in a random order, would you? No, you'd learn one at a time, breaking the information down into useful chunks (e.g. "Friend*name1@*", followed by "*provider.co.uk*"; "Friend*name2@*" followed by "*provider.co.uk*"). The same is true for exam material. If you try to read/learn the material in a logical order, as chunks of connected material, it's easier to recall later on. This is because it is easier to manage, consolidate and put together when you recall it.

### Attention paid to the information

If you are tired or inattentive there are fewer cognitive resources available to encode the information. For example, cramming information into your head at midnight, the night before your 9 a.m. exam, when you are tired and stressed, just won't be as effective as if you learn and revise the material when you are wide awake and alert but relaxed. Using caffeine to wake you up might not help either. In fact, it can make things worse. Not only can too much caffeine disrupt the delicate biochemical processes of memory formation during learning (see below), too much caffeine can make it difficult to concentrate on anything and will disrupt sleep, which has been shown to be hugely important in consolidating new memories.

## Amnesia

Forgetting is therefore partly to do with you and partly to do with the information itself, and is perfectly normal. However, there are times when people forget because their brain is not working so well. For example, when people are drunk, or under the influence of other drugs, this disrupts the biochemical processes of learning in the hippocampus (a brain structure, important for making new memories). Sometimes when people are drunk it prevents the formation of new memories. This kind of permanent forgetting (amnesia), which can also occur when someone has been knocked out, is called *anterograde* amnesia.



Another kind of amnesia is *retrograde* amnesia. In this kind of amnesia, patients have difficulty accessing old memories (e.g. who they are, where they are from). It is caused by damage or disruption to brain areas like the frontal lobes or the prefrontal cortex, and may be caused by drug/alcohol abuse (it is seen in patients suffering from Korsakoff's syndrome) and other brain traumas (e.g. blow to the head, stroke, disease).

The good news is that while both types of amnesia can be totally devastating (imagine living without remembering), most cases are very mild (have you ever forgotten a friend's name…), are short lived (…then remembered it a few minutes later?) and impermanent (you remember it straight away next time). Memory can be fragile, easily disrupted and sometimes untrue. Memories fade because that's how memory works. To forget is normal.

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**References**

Bartlett, F. C. (1932) *Remembering: A Study in Experimental and Social Psychology*, Cambridge University Press.