

# Consumer memory and learning

## Introduction

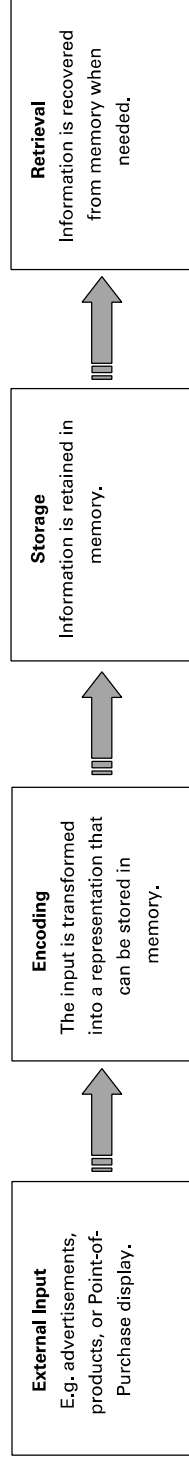
This chapter introduces you to how our memory system works, and the different ways in which consumers can learn about products and services. It is important to have an understanding of both areas if one wishes to truly understand consumer behaviour. Knowing how memory works helps marketers to understand why consumers forget certain marketing messages, and what can be done to help them remember product information. Awareness of different methods of learning can shed some light on what can be done to ensure that consumers are 'taught' to engage in specific types of consumption behaviour.

## Consumer memory

Memory is an active mental system that receives, stores, organizes, alters and recovers information (Baddeley, 1990). Without understanding how our memory works, it will not be possible to fully appreciate how consumers reason, make decisions and solve problems, since most consumer decisions are dependent on memory (Alba, Hutchinson, & Lynch, 1991). Memories are personal records of past experiences which can help us to learn new information, affect how we perceive stimuli (Palmeri & Gauthier, 2004), and at times, guide our behaviour (Dougherty, Gronlund, & Gettys, 2003). It is therefore unfortunate for marketers and advertisers that consumers tend to have poor memories for brand names, prices and attribute information (Keller, 1987; Meyers-Levy, 1989; Morwitz, Greenleaf, & Johnson, 1998).

Purchase decisions are often made hours, days, weeks or even months after the consumer was originally exposed to the product information and with limited memories of specific product attributes, advertising has only a limited impact upon the decisions made. For consumers to remember any product- or service-related information at a later date, they need to encode and store that information. The process of **encoding, storage** and **retrieval** (when information is remembered) suggests that our minds function in a similar fashion to a computer (see Figure 2.1).





The human memory processes function in a similar fashion to a computer in that they follow a particular pattern whereby information needs to be transformed into something comprehensible before it can be stored and then retrieved.

**FIGURE 2.1** Memory processes.

When encoding information, the consumer transforms the stimuli they encounter into a representation that can be stored in memory. At this stage it is important that they fully recognize and understand the stimuli they have encountered. If the stimuli are ambiguous, the consumer may find it difficult to make sense of the information and consequently fail to store it in their memory. After having encoded the information, the consumer then stores the information in their memory so that it can later be retrieved when they need to access it. Retrieval of product information (or any other type of information) starts with the activation of a node. A node is a particular piece of information that has been stored in long-term memory. When the node is activated, it is transferred from long-term memory to short-term memory so that a person becomes conscious of the product-related information.

## **Memory systems**

Several theories of memory are based on the assumption that our memory consists of three components: sensory memory, short-term memory, and long-term memory (e.g. Atkinson & Shiffrin, 1968). Not all psychologists support the idea of three separate components but it remains one of the most influential models of memory (Matlin, 1998) and many information processing systems are built on this premise (e.g. Bettman, 1979; Sternthal & Craig, 1982). Together the three components are thought to be necessary in order for us to process, store and later access information relevant to our ongoing behavioural goals (see Figure 2.2).

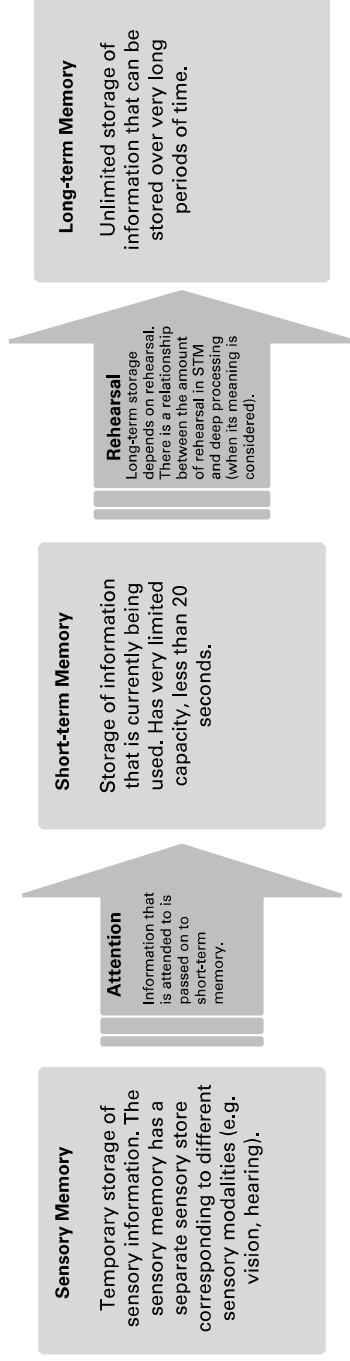
### ***Sensory stores***

The sensory stores allow us to store information received through different input modalities (i.e. vision, touch, smell, taste, and hearing) for very brief periods of time. The information lingers for some time after the end of stimulation, enabling the individual to extract the most important features for further analysis. For example, a person might be bombarded with a multitude of different visual and auditory stimuli while walking through a busy shopping district. Most of this cacophony of sights and sounds are of no particular significance, but there may be a tune heard through a specific shop door that captures the person's attention – even though it is only heard for a second or two. In such cases, the stimulus may warrant further investigation.

It has been found that visual information decays within approximately 0.5 seconds (Sperling, 1960) while auditory information lasts for around 2 seconds (Darwin, Turvey, & Crowder, 1972). Provided the information exposed to is of interest and consequently retained for further processing, it is then transferred to short-term memory.

### ***Short-term memory (STM)***

Short-term memory (STM) is a system for storing information for brief periods of time and it has a limited capacity (but not as limited as the sensory stores). It deals with the information that is currently being processed. The limitations of the STM were



The three components of memory demonstrate how there is a relationship between sensory memory, attention, short-term memory, rehearsal and long-term memory.

**FIGURE 2.2** Three components of memory.

demonstrated by George Miller (1956) when he conducted a series of digit span tests. In his studies, participants were asked to repeat in the correct order a series of digits that they had heard. Miller found that most could repeat seven digits without making mistakes but most people find it very difficult to repeat more than that. From his studies he concluded that STM has a capacity of seven digits, give or take two digits either way. Hence the STM appears to have the capacity to deal with 'seven plus or minus two' pieces of information at any given time. However, it is possible to increase the amount of information that the STM is capable of dealing with by grouping information together into meaningful units of information, this is known as **chunking**. Regardless of whether the pieces of information are small or large, people still recall approximately seven items at any time (Newell & Simon, 1972).



When people are presented with more information than the STM can deal with, they tend to more readily recall information that was either presented at the beginning or at the end. This is known as the **order effect** (McCrary & Hunter, 1953). Glanzer and Cunitz (1966) demonstrated the order effect when they presented their participants with a list of words and asked them to recall the words in any order they liked. The findings demonstrated that participants generally recalled the first (*primacy effect*) and the last (*recency effect*) few words especially well. From this, they concluded that the primacy effect occurred because the first few words had, through rehearsal, already entered long-term memory. The recency effect occurred because the last few words were still held in short-term memory at the time of recall, but the words in the middle of the list were lost from memory because they were replaced by the later words. This clearly has implications for advertisers and marketers in that they ought to present the information they hope that consumers will remember first or last in their marketing messages, although this will necessarily depend on the amount of information presented.

### **Long-term memory (LTM)**

Unlike STM, long-term memory (LTM) does not have a limited capacity – it is essentially infinite – and once our memories have reached the long-term store, they are there for a very long period of time, perhaps forever (for differences between STM and LTM, see Figure 2.3). Information is transferred from STM to LTM provided

Properties	Short-Term Memory	Long-Term Memory
Capacity	Seven items plus or minus two	Unlimited
Duration	Eighteen seconds	Permanent
Information loss	Rehearsal failure	Retrieval failure
Coding	Acoustic (connected to sound)	Semantic (connected to meaning)

**FIGURE 2.3** Differences between short-term and long-term memory.

that a person thinks about the meaning of stimuli encountered and relates it to other information already stored in LTM. The more integrated the information is in LTM, the easier it will be to remember.

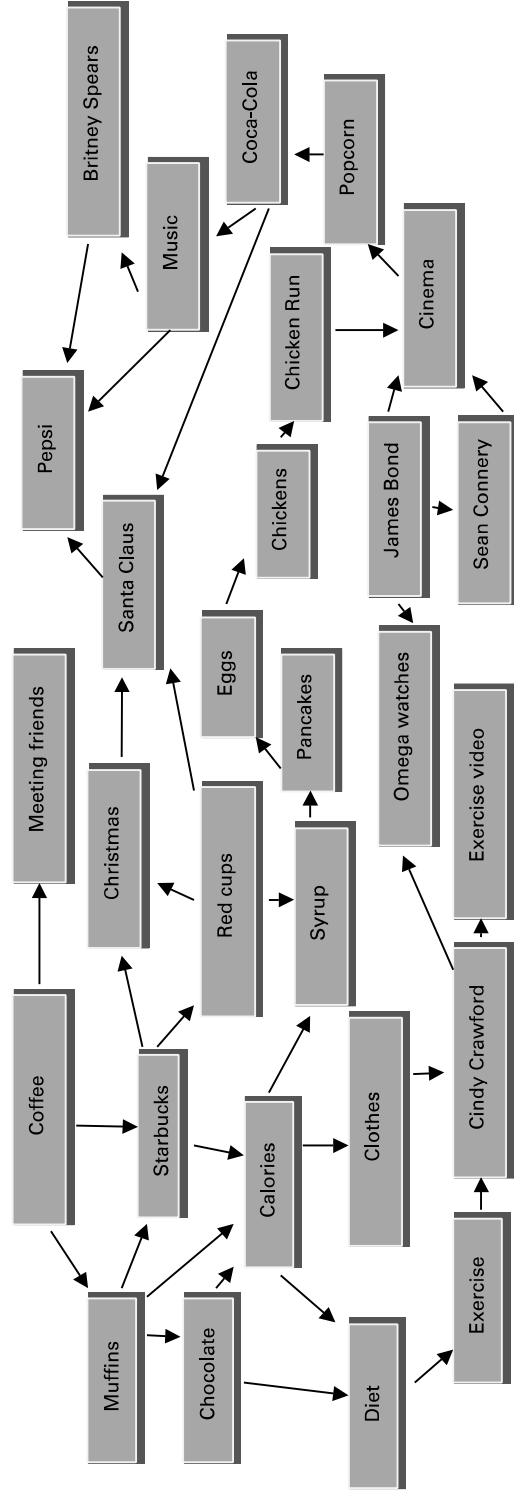
The structure of LTM is like a massive integrated spider's web. Each consumer-related piece of information that is stored is also directly or indirectly linked to other pieces of information also stored in LTM so that they form an associative network (Anderson, 1983, 1993). For example, the first thing that springs to mind when you hear the brand name Mercedes may be 'exclusive cars'. However, as you continue to think about it, you may also be thinking about Formula One (as Mercedes are one of the sponsors), then Lewis Hamilton (as he is one of the Formula One drivers), then Naomi Campbell (because she attended a few Formula One races), then other supermodels, and so forth. The longer you think about it, the less directly associated the thoughts may become. But nevertheless they are directly or indirectly related to the original piece of information encountered (see Figure 2.4 for an example of a cognitive associative network). The proximity of the relationship between certain associations and brand names or products can be tested by what is known as **response-time methods** (e.g. Collins & Loftus, 1975; Herr, Farquhar, & Fazio, 1996). In such tests, statements are typically presented and the participants are requested to press either a true or a false button as quickly as they can, depending whether they believe the statements are correct or not. Longer response times indicate that the associations are further away from what is being tested and shorter times that there is a close association between the two. The method is also useful in mapping out consumers' cognitive representations of particular brands and products.

Associations can be formed between anything and they may happen consciously or subconsciously. Just by thinking about two concepts simultaneously we can form an association between them even though they may not have been related to start off with. Our associative mental networks play a part in what is known as the **priming effect** which is when existing information is used to guide our judgements about other pieces of information that we come across. For example, after watching violence on the news it seems much more likely that people's lives will be affected by violent events (Fischhoff, Lichtenstein, Slovic, Derby, & Keeney, 1981).

How information is organized has an impact upon how easily information can be stored in, and retrieved from, LTM. Researchers have found that when multiple items of information are comprehensible and clearly linked together, they are more easily remembered than if they were not (Bransford & Johnson, 1972). Pieces of information that are clearly grouped together enhance memory performance. This was found in a study where participants were presented with a list of different types of minerals and were afterwards asked to recall as many as possible. Most participants could only name a few of the minerals from the list. However, recall was greatly improved when minerals on the list were grouped together into specific categories such as rare, precious stones and masonry stones (Bower, Clark, Lesgold, & Winzenz, 1969).

The multi-store model of memory is simplified in that it only really provides the





**FIGURE 2.4** Example of cognitive associative network.

very basics of how memory works. There is evidence that the STM is not a unitary store (e.g. Warrington & Shallice, 1972) and instead it appears that it consists of separate subsystems (e.g. Baddeley & Hitch, 1974). This has also been suggested for LTM in that it may consist of several long-term memory systems which focus on particular types of information. For example, there may be an **episodic memory** (memories of specific events that happened at a particular place and at a particular time) and **semantic memory** (memories of general factual knowledge about the world) (Tulving, 1972, 1983). In particular, the distinction between an episodic and semantic memory is commonly acknowledged by consumer researchers and practitioners. Commercials often try to trigger episodic memories by focusing on experiences that are shared by a large number of people. In this way consumers' experiences become blurred with what was presented in the commercial (e.g. Holden & Vanhuele, 1999; Skurnik, Yoon, Park, & Schwarz, 2005).



Even though the multi-modal model has been criticized as providing an overly simplified framework for understanding the complexity of our memory system, it still functions as a good foundation for understanding how human memory plays a part in consumer behaviour.

## Remembering and forgetting

Techniques that help individuals remember previously encountered marketing information and why they forget some of it clearly have an impact upon consumer behaviour. Psychologists have come up with a number of different reasons for why people remember and forget and there are two theories that are particularly applicable to Consumer Psychology: (1) *Encoding specificity* (which functions as a memory aid); and (2) *interference* (which typically impairs memory).

### ***Encoding specificity***

Research has found that our ability to recall information is influenced by the level of similarity between encoding and retrieval conditions (i.e., our ability to recall previously experienced information will be sensitive to any environmental changes which occur between learning and recalling that information). In 1973, Tulving and Thomson found that people remember events much better if they are in the same environment as the one where the information was first learned. This observation was explored further when Godden and Baddeley (1975) set out to test whether long-term memory is context dependent. In their study they asked scuba divers to learn a list of words, either while they were 20 feet under water or were above water. Their findings supported the encoding specificity hypothesis in that memory performance was best when encoding and retrieval took place in the same environment.

The encoding specificity principle lends support to the importance of effective in-store advertising. If the context of an advert can be created at the point of sale, it can aid recognition and recall of product information (Bettman, 1979; Lynch & Srull, 1982). However, it is important that the same type of stimulus is used as it will



otherwise fail to produce better recall. For example, if a consumer was originally exposed to a visual stimulus, exposure to a visual element at a later point in time is more likely to trigger recall than an auditory one (Costley, Das, & Brucks, 1997).

### **Interference**

For a long time the theory of interference was one of the most common explanations for why people forget. Interference occurs when memory performance is reduced due to having learned additional information that is preventing a consumer from remembering another particular piece of information (Tulving & Psozka, 1971). There are two types of interference: proactive and retroactive. **Proactive interference** is when new learning is disrupted by old information and **retroactive interference** is when the forgetting of previously learnt information is caused by the learning of new information. The greater the similarity between memory traces, the greater the degree of interference (Wickens, 1972). For example, let's say that an individual is exposed to two commercials of a similar nature in a row. When they are later trying to remember the second commercial, they may actually remember the first one (proactive interference). The more similar advertisements or commercials are (e.g. same product category or products made by the same manufacturer), the more likely consumers are to experience interference (Burke & Srull, 1988). However, the interference effect ceases when consumers are exposed to brand names that they are already highly familiar with (Kent & Allen, 1994).

It is worth pointing out that interference does not have the same effect when the consumers intentionally try to forget information. In such situations it has been found that old information can be temporarily blocked out, meaning that new product information can be more easily retrieved (Shapiro, Lindsey, & Krishnan, 2006).

### **Implicit memory**

Previously, consumer-related research has mainly focused on the effects of explicit memory ('when performance on a task requires conscious recollection of previous experiences', Graf & Schachter, 1985, p. 501) upon consumer behaviour. However, this gradually changed, especially during the past 15 years, when researchers realized that implicit memory ('when performance on a task is facilitated in the absence of conscious recollection', Graf & Schachter, 1985, p. 501) can play an equally important role.

Implicit memory tasks are commonly used in decision-making processes, meaning that consumers are often unaware of what influenced their product choice. The assumption that there is a clear distinction between explicit and implicit memory is becoming more apparent in research focused upon consumer memory and it has been suggested that implicit tasks are more effective when it comes to measuring the impact of advertising (e.g. Lee, 2002) and that it may be more long-lasting than explicit memory (Finlay, Marmurek, & Morton, 2005).

One study that demonstrates the difference between implicit and explicit memory was conducted by Jacoby, Kelley, Brown and Jasechko (1989). They



found that new unfamiliar names presented to participants can be mistakenly identified as famous names 24 hours later. The most likely reason for this finding is that the names would later be familiar to the participant, and this familiarity would be confused with fame. However, if subjects were told at the outset that all the names were newly constructed, they later judged the names as non-famous. This effect has also been found to work with brand names (Holden & Vanheule, 1999).

### **How can marketers aid consumer memory?**

Marketers can use a number of different techniques to ensure that their products and services are more likely to be remembered than all the other competitors' stimuli that consumers encounter. Such techniques involve continuously repeating marketing messages, and use of pictures.

#### ***Repetition***

Repeatedly exposing consumers to marketing stimuli can increase the likelihood of recalling them (e.g. Unnava & Burnkrant, 1991) as well as strengthen associations between specific attributes and brand names (Burke & Srull, 1988). Consumers do not have to be frequently exposed to the exact same marketing message, and it has been found that using different ads to advertise the same brand can be even more effective when it comes to increasing the likelihood of recall (Unnava & Burnkrant, 1991).

Repeated exposure works best when consumers have little or no involvement with the stimuli they are exposed to, as repetition then increases the likelihood of moving information from STM to LTM (Krugman, 1965). Consumers are also much more likely to believe the messages they are repeatedly exposed to when they are not motivated to scrutinize the message content (Hawkins & Hoch, 1992).

Additionally it has also been found that repetition is not as effective in improving memory performance when competitive interference occurs due to the similar nature of other messages that people are exposed to just before or after the intended target stimulus (Burke & Srull, 1988). One way of dealing with interference, in order to make repetition more effective, is to make use of cues that are unique in some way so that consumers cannot confuse them with other marketing stimuli (Keller, 1987).

#### ***Pictorial cues***

Pictorial stimuli are more likely to capture attention which explains why most consumers tend to look at visual stimuli before they look at the text that often accompanies the picture (Kroeber-Riel, 1986). There is little doubt that pictures are essential when it comes to clearly presenting short messages and stories (e.g. Mandel, Petrova, & Cialdini, 2006) and that they can improve memory and aid recall (Lord, 1980; Swann & Miller, 1982). When information is presented using visual stimuli, it is more likely to be recognized at a later time (Childers &

Houston, 1984). This suggests that when consumers have been exposed to advertising that incorporates pictures, the product advertised will be more easily remembered at the point of purchase, provided that the right cues are in place (such as a point-of-purchase display using similar imagery to an ad) to trigger recall. Additionally making use of pictures that have deeper meaning and are of a slightly complex nature can also ensure that they will be remembered just as well by older consumers (e.g. Park, Royal, Dudley, & Morrell, 1988).

### **Marketing to older consumers**

Because cognitive processes change when people get older, marketers may have to rethink some of the strategies they use when targeting older consumers. The impact of aging upon the memory process is not entirely clear (Kausler, 1994; Schaie, 2005) and it is difficult to know to what extent research findings are applicable to all older people. Nevertheless there are a number of research findings that Consumer Psychologists should be aware of when working with older populations.

One effect of aging is that the speed of processing generally slows down (Cerella, 1985; Salthouse, 1996). In particular, it appears that people's short-term memory is affected (Moscovitch & Winour, 1992) and consequently older individuals cannot always easily store information about lots of different products and brands, which may in turn explain why they are less likely to spend time searching for and looking at additional product information (Lambert-Pandraud, Laurent, & Lapersonne, 2005; Lin & Lee, 2004).

Older consumers also find it harder to remember pictorial information, and where they heard or saw something (McIntyre & Craik, 1987). Additionally they can also become confused about whether they actually heard or saw information (Light, LaVoie, Valencia-Laver, Albertson Owens, & Mead, 1992) as well as whether the person who told them was a man or a woman (Bayen & Murnane, 1996). The outcome of this is that they often remember things incorrectly (Norman & Schachter, 1997; Tun, Wingfield, Rosen, & Blanchard, 1998). To ensure that older consumers will correctly remember the information they are exposed to, marketing stimuli need to be presented in a way that is meaningful and consequently easily fits into their schema (for definition see page 67) (Park et al., 1988; Smith, Park, Cherry, & Berkovsky, 1990). The reason why putting things into context aids recall is most likely because it facilitates integration within a reduced capacity memory system (Craik, 1986; Park, Smith, Morrell, Puglisi, & Dudley, 1990).

However, if it is necessary to present older consumers with complex information, it may be best to try and do so during the morning. It has been found that they are more easily persuaded during the morning hours when faced with information that is harder to process (Yoon, Lee, & Danziger, 2007) which may be due to the fact that their processing resources have not yet been exhausted.