

CHAPTER 1

Learning to learn and its relevance to logical clinical problem-solving

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The why

- Animals present to veterinarians with clinical signs, not diagnoses. Therefore, the aim of this book is to enhance your clinical reasoning skills by providing you with a consistent and transferable problem-solving framework that can be applied to common clinical signs in veterinary practice.
- Most of the chapters relate to small animal practice, but there are also chapters demonstrating how to use the problem-solving framework in exotic animals and horses as well as a chapter discussing a framework for professional reasoning.
- Before we start, though, we should review why having a consistent problem-solving framework can be so powerful for veterinary students starting on their clinical journey as well as veterinarians who have knowledge and experience but may struggle when medical cases become more complex or unusual.

Learn more effectively

This chapter will help you learn more effectively, both to build your veterinary knowledge and more generally. Of course, as learning carries on beyond graduation, many of the ideas described here will be useful for years to come and so are relevant to those of you who

may be studying for post-graduate qualifications. The chapter examines:

- How we learn – using our senses in combination to boost memorisation
- How to use this book
- Study skills strategies for veterinary knowledge.

Let's get going

How do we learn? Our five senses play a major part in how and what we learn, as much of what we learn is based on memory; using them together results in much better memory outcomes than only using one or even two senses.

Consider this sequence of learning something new: reading alone; reading with hearing; reading with hearing plus kinaesthetic (doing or acting out); reading with hearing plus kinaesthetic (doing or acting out) and repetition. As we proceed through this sequence, we understand and remember more and for longer (Flanagan 1996) – what could be called the 'staircase' of memorisation.

We remember:

- 20% of what we read
- 30% of what we hear
- 40% of what we see
- 50% of what we say
- 60% of what we do
- And as much as 90% of what we read, hear, say, see and do.

That last bullet point is worth emphasising; we can achieve exceptional results by combining multiple senses (see Figure 1.1).

Of particular relevance to this book, placing information within 'frameworks' further boosts memorisation. In the context of veterinary studies, imagine you are in a lecture, in person or online, and the presenter just verbally describes a procedure step-by-step. How much do you remember? Perhaps not too much. Now imagine that the presenter talks you through the procedure step-by-step using a diagram, ideally using colour. Are you likely to remember more? Probably. Now imagine that you later talk yourself through the procedure, using your finger to trace the diagram's steps. Is your memory

better? Again, probably. Now additionally you perform the procedure either in mime or a practical session. How is your recall now? Quite likely better still. Finally, if you add in teaching the procedure to someone else, you will achieve the highest level of memorisation.

Figure 1.2 illustrates this idea of increasing ability to memorise. Note that the graphic itself provides a sequence/framework that can be learned, and it uses colour and directional symbols to support the above description and underlying concept.

Figures 1.1 and 1.2 embody alternative representations of broadly the same idea. This repetition is intentional; repetition is important in building memory, especially if that repetition occurs multiple times shortly after original exposure to the material (Ebbinghaus 1885; Flanagan 1996). This is one of the key elements of the problem-solving framework we will discuss – repetition and consistency of clinical reasoning steps regardless of the clinical problem.

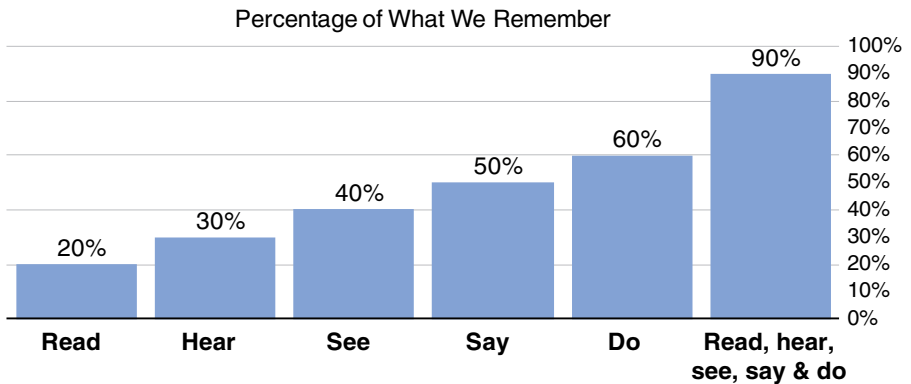


Figure 1.1 Visual representation of the staircase of memorisation.

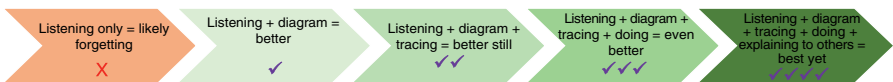


Figure 1.2 Introducing a diagram into the sequence of actions to improve understanding and memorisation.

How is this learning theory relevant to this book?

This book is designed to give you a multi-sensory approach to learning, reinforced by repetition, together with a robust framework on which to ‘hang’ veterinary facts. The problem-solving framework is based on pathophysiological principles that will lead you to a deeper understanding, enhanced ability to recall information and more reliable diagnoses.

Chapter 2 introduces you to clinical reasoning in general and the logical clinical problem-solving (LCPS) process in particular. It uses case studies to illustrate the strengths and challenges of different clinical reasoning approaches.

The subsequent chapters use particular clinical problems to illustrate and further explain how to use LCPS for common clinical signs. Each of the four steps is consistently colour coded so you can associate the colour to the step. The case scenarios in many chapters will help you visualise how LCPS is applied to real-life cases.

Every chapter opens with an orientating introduction and ends with a key points recap. Figure 1.3 illustrates how the structure of the chapters leads to understanding and memorisation. Take a moment to follow the flow step-by-step.

You can perhaps see what is ‘going on’ here. The book is designed to help you remember and learn more effectively by providing a

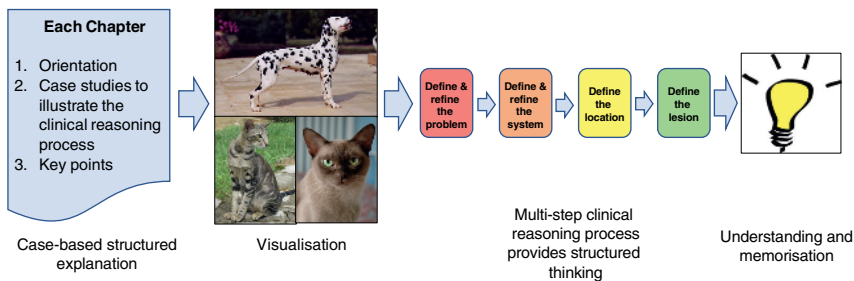


Figure 1.3 How the structure of the chapters leads to understanding and memorisation.

process, scenario-based text, graphics, colour and repetition – many of the elements in the staircase to memorisation. You can add further elements, such as talking through to yourself (subvocalising; see Figure 1.4) each step of the LCPS process for each scenario and perhaps teaching each of the scenarios within the clinical reasoning process to a colleague (a learning buddy; see Figure 1.5).

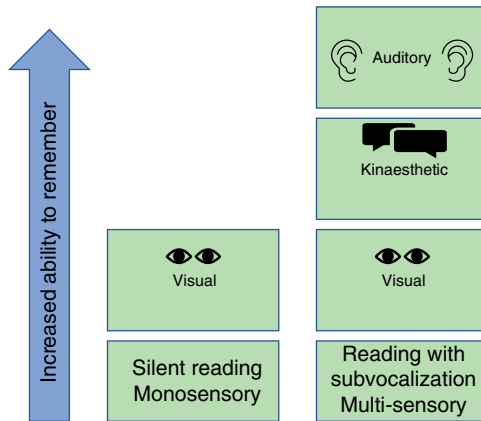


Figure 1.4 Memorisation benefit through subvocalisation.

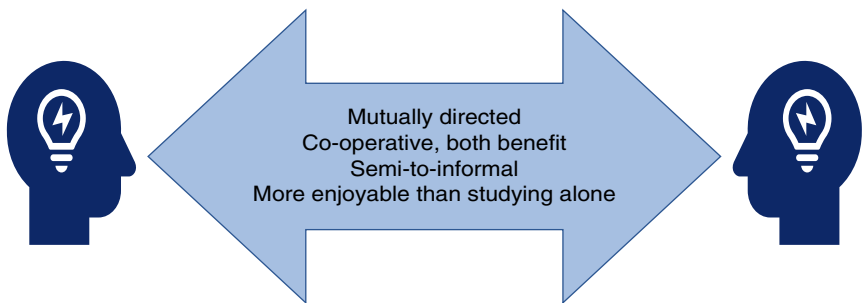


Figure 1.5 Benefits of having a learning buddy.

Key points – learning more effectively

- Make your learning multisensory. The more senses you use, the better you remember.
- Create and use frameworks on which to ‘hang’ your knowledge; they are powerful tools to help you remember and learn.
- The logical clinical reasoning process, the framework at the heart of this book, is specifically designed to help you become a more effective veterinarian, especially when faced with the unexpected.

References

- Ebbinghaus, H. 1885. *Memory: A Contribution to Experimental Psychology* (translated: Ruger, H. A., and Clara E. Bussenius, 1913). http://nwkpsych.rutgers.edu/~jose/courses/578_mem_learn/2012/readings/Ebbinghaus_1885.pdf.
- Flanagan, K. 1996. *Maximum Points, Minimum Panic: The Essential Guide to Surviving Exams*. Dublin: Marino Books.