

Exercise walk-through

Encoding Memories ■ 2.4

eXercise

You must be able to

- distinguish **effortful** 有意 from **automatic** 自动 encoding
- explain **levels of processing** 加工水平 and why deeper is better
- describe **chunking** 组块 and **mnemonics** 记忆术
- explain the **spacing effect** 间隔效应 and the **testing effect** 测试效应

Method — Effortful and automatic

Some information is encoded without intention — space, time, frequency. Most academic material requires **effortful** encoding: deliberate attention and rehearsal.

Method — Levels of processing

Processing by **meaning** (semantic) produces better retention than processing by sound or appearance. Asking “does this fit what I know?” encodes more deeply than asking “how is it spelled?”.

Method — Chunking and mnemonics

Chunking groups items into larger meaningful units, so a seven-item limit holds far more than seven letters. **Mnemonics** impose an existing structure — a rhyme, a route, an acronym — on unstructured material.

Method — Spacing and testing

Study **distributed** over days beats the same total time massed into one session. And **retrieving** material — self-testing — strengthens memory more than re-reading it.

Practice 2.1 ■ 2 marks

State the difference between effortful and automatic encoding.

Solution 2.1

Method: Effortful and automatic

Worked steps

effortful encoding requires deliberate attention and rehearsal **B1**; automatic encoding happens without intention, e.g. for space, time or frequency **B1**.

Practice 2.2 ■ 2 marks

Explain why semantic processing produces better retention than rehearsing sounds.

Solution 2.2

Method: Levels of processing

Worked steps

semantic processing connects material to existing knowledge **B1**, creating more retrieval routes than a surface feature such as sound **B1**.

Practice 2.3 ■ 1 mark

A student rewrites her notes as a set of questions and answers them from memory.

- (a) Name the effect she is using.
- (b) State why it beats re-reading.

Solution 2.3

Method: Spacing and testing

Worked steps

(a) the testing effect **B1**. (b) retrieval practice strengthens the memory itself, whereas re-reading mainly increases familiarity **B1**.

Exam-style 3.1 ■ 1 mark

Remembering a phone number as three groups rather than ten digits uses

- A** chunking
- B** the spacing effect
- C** automatic encoding
- D** sensory memory

Solution 3.1

Method: Chunking and mnemonics

A chunking



B the spacing effect

C automatic encoding

D sensory memory

Worked steps

A. grouping creates larger meaningful units within the capacity limit.

Exam-style 3.2 ■ 1 mark

Two students study for six hours. One does six one-hour sessions across a week; the other does one six-hour session. The first is likely to remember more because of

- A** the testing effect
- B** the spacing effect
- C** chunking
- D** shallow processing

Solution 3.2

Method: Spacing and testing

A the testing effect

B the spacing effect 

C chunking

D shallow processing

Worked steps

B. distributed study outperforms the same total time massed.

Exam-style 3.3 ■ 1 mark

A student highlights a textbook and feels confident about the material.

- (a) State one reason this confidence may be misleading.
- (b) State one better strategy and justify it.

Solution 3.3

Worked steps

(a) familiarity from re-reading feels like knowing, but is not the same as being able to retrieve **B1**. (b) self-testing or spaced retrieval **B1**, because retrieval strengthens the memory and reveals what is actually missing **B1**.