

2.4 Encoding Memories

Name: _____ Class: _____ Date: _____

Total: 11 marks

KEY WORDS encoding 编码 • automatic 自动 • chunking 组块 • effortful 有意 • spacing effect 间隔效应

Objective

Build the skills to answer exam questions on **encoding** 编码 and what makes it effective.

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

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ Effortful and automatic

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

■ 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?”.

■ 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.

■ 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.

2 Practice

2.1 State the difference between effortful and automatic encoding. [2]

2.2 Explain why semantic processing produces better retention than rehearsing sounds. [2]

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

(a) Name the effect she is using. [1]

(b) State why it beats re-reading. [1]

3 Exam-style questions

3.1 Remembering a phone number as three groups rather than ten digits uses [1]

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

3.2 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 [1]

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

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

(a) State one reason this confidence may be misleading. [1]

(b) State one better strategy and justify it.

[2]

Solutions

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

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

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

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

3.2 B. distributed study outperforms the same total time massed.

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