

## 8.2 Motor learning, feedback and retention

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_ **Total: 10 marks**

**KEY WORDS** knowledge of results • retention

### Objective

Motor learning, feedback and retention. Supported SL concept preparation; original classroom practice, not an official IB paper or assessed learner work.

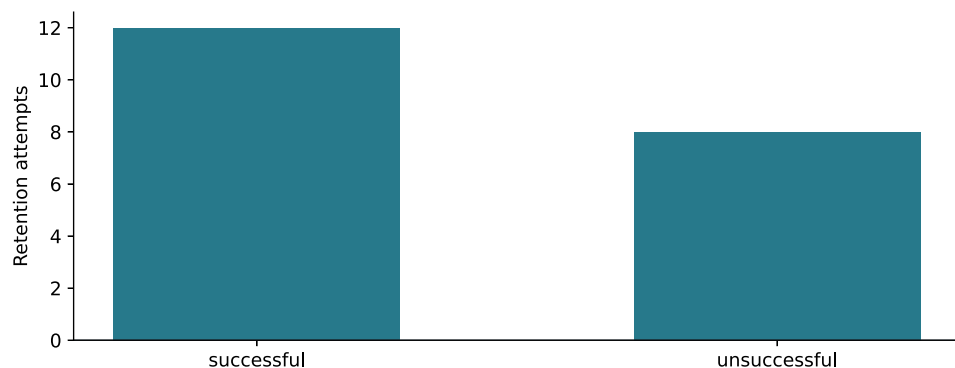
### 1 Key knowledge and worked examples

#### ■ What would explain this observation?

- A learner performs well while a coach gives constant instructions, then struggles the next day. Immediate performance and retained learning are different outcomes.
- Start with a prediction. State the quantities or features you would compare, then decide what evidence could distinguish two explanations.

#### ■ Build the model

- Motor learning is a relatively lasting change in movement capability from practice.  
**Knowledge of results** concerns the outcome; knowledge of performance concerns movement quality.
- **retention** : Persistence of learning after a delay; knowledge of results: Feedback about the task outcome.



#### ■ Choose evidence that can test it

- A retention test after a delay and without the same assistance can provide evidence of learning. Practice conditions, prior experience and task difficulty need control before comparing feedback methods.
- Use a low-risk target task, equal practice time, random or balanced assignment, and a delayed retention test. Record outcome accuracy separately from movement quality. Seek consent and avoid labels about a participant ability or personality.

#### ■ Work from known quantities

- State the known values and their units. Choose the relation because its assumptions fit this case, then rearrange before substitution.
- Known: 12 of 20 throws hit a target during retention. Accuracy = successful attempts/total attempts  $\times 100 = 12/20 \times 100 = 60\%$ . Another group at 70% is not automatically superior without sample variability and comparable starting performance.

#### Example:

15 of 25 retention attempts succeed. Find success percentage. Use the same sequence: known quantities  $\rightarrow$  model  $\rightarrow$  relation  $\rightarrow$  substitution  $\rightarrow$  unit and interpretation.

#### ■ Check the conclusion and its limits

- More feedback is not always better for independent performance. A short-term improvement alone does not demonstrate a lasting learning change.
- Return to the original observation. Explain what the result supports, which conditions it assumes, and one way to test a competing explanation.

#### Warn:

High performance during guided practice always proves lasting motor learning. This claim is false: More feedback is not always better for independent performance. A short-term improvement alone does not demonstrate a lasting learning change.

#### Key:

Motor learning, feedback and retention: A retention test after a delay and without the same assistance can provide evidence of learning. Practice conditions, prior experience and task difficulty need control before comparing feedback methods.

## 2 Practice

---

**2.1** Which measure best tests lasting learning? Choose one answer.

- **A** Performance only while the coach supplies every correction
- **B** A delayed unassisted retention test
- **C** The participant favourite colour

[1]

---

**2.2** 15 of 25 retention attempts succeed. Find success percentage. Show the relation, substitution and units.

[2]

---

**2.3** Decide whether this claim is true and justify: High performance during guided practice always proves lasting motor learning.

[2]

---

**2.4** Persistence of learning after a delay: write the technical term.

[1]

## 3 Exam-style questions

---

**3.1** Fictional practice accuracy is 90%; delayed retention without feedback is 60%. Interpret the change and design a test of durable learning.

[4]

---

---

---

---

---

---

---

---

---

---

## Solutions

---

**2.1 B** A retention test after a delay and without the same assistance can provide evidence of learning. Practice conditions, prior experience and task difficulty need control before comparing feedback methods.

**2.2** Success percentage= $15/25 \times 100 = 60\%$ .

**2.3** False. More feedback is not always better for independent performance. A short-term improvement alone does not demonstrate a lasting learning change.

**2.4** retention. retention means Persistence of learning after a delay.

**3.1** Observed performance fell 30 percentage points. Compare matched baselines, delayed retention without feedback and transfer trials, with repeats. Practice performance alone does not prove durable learning or its cause.