

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 HL concept preparation; original classroom practice, not an official IB paper or assessed learner work.

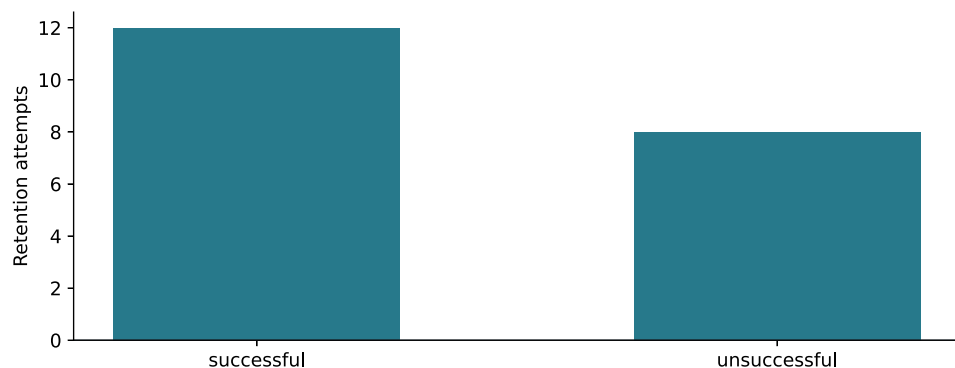
1 Key knowledge and worked examples

■ 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.