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. Original classroom practice for IB SL; not an official IB paper.

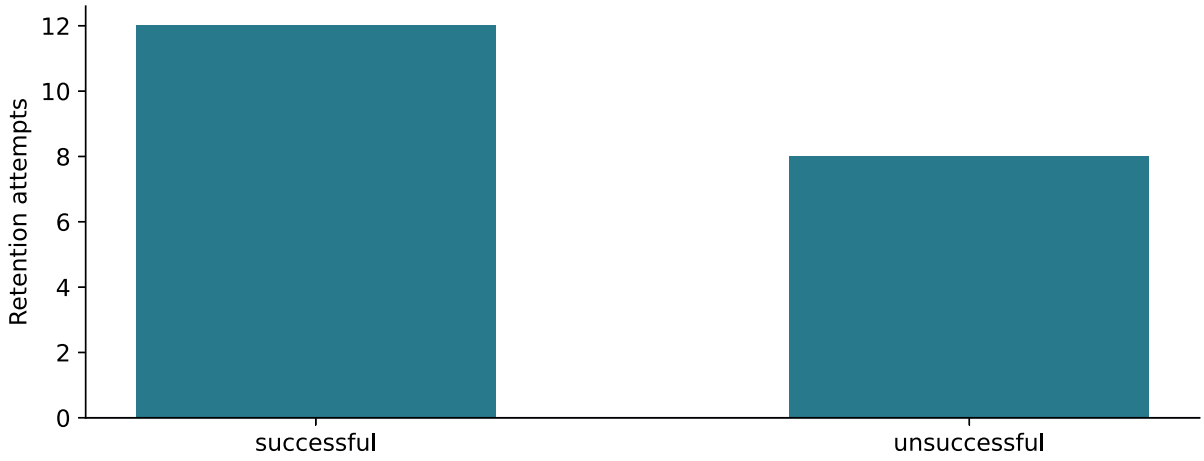
1 Key knowledge and worked examples

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.

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.

In the lab: 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

- 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.

Your turn: 15 of 25 retention attempts succeed. Find success percentage.

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.

Not true: High performance during guided practice always proves lasting motor learning. Guided practice props up performance; when the guidance is removed, performance often drops. Lasting learning is shown by delayed, unassisted retention - which is why the retention test exists.

Key:

- Motor learning is a relatively lasting change in movement capability from practice.
- A retention test after a delay and without the same assistance can provide evidence of learning.
- Watch for: more feedback is not always better for independent performance.

Write from 80 percent retention accuracy

- 16 of 20 throws hit the target during retention.
- Find the success percentage. Guided practice does not prove lasting learning.

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 Learning is a lasting change, so it is tested by performance after a delay without help. Strong performance while the coach corrects every attempt may reflect guidance, not learning; favourite colour is irrelevant to the skill.

2.2 Success percentage=15/25×100=60%.

2.3 False. Guided practice props up performance; when the guidance is removed, performance often drops. Lasting learning is shown by delayed, unassisted retention - which is why the retention test exists.

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.