THIS CHAPTER’S CONCEPT

PEOPLE WHO ASSESS LEARNING MUST MAKE INFERENCES FROM OBSERVING PERFORMANCE DURING PRACTICE AND TESTS
SESSION OUTLINE

• Performance distinguished from learning
• General performance characteristics
• Assessing learning
  – By observing
  – By retention tests
  – By transfer tests
  – From coordination dynamics
• Assessing performance
• Summary
PERFORMANCE
DISTINGUISHED FROM LEARNING

• PERFORMANCE
  – Observable behavior
  – refers to execution of skill
    • A specific period of time
    • A specific manner

Continued
PERFORMANCE DISGUIshed FROM LEARNING

• Learning
  – Change in one capability to perform a skill
  – Must be inferred
  – Relatively permanent
  – Result of practice
GENERAL PERFORMANCE CHARACTERISTICS

• IMPROVEMENT

• CONSISTENCY

• PERSISTENCE

• ADAPTABILITY
ASSESSING LEARNING BY OBSERVING PRACTICE PERFORMANCE

• **PERFORMANCE CURVES**
  – Records levels of performance over time
  – Graph of outcome measures of performance
    • Performance measure plotted on vertical axis
    • Time over which performance is plotted on horizontal axis

Continued
ASSESSING LEARNING BY OBSERVING PRACTICE PERFORMANCE

• Two performance characteristics can be observed with performance curves
  – Improvement
  – Consistency

Continued
ASSESSING LEARNING BY OBSERVING PRACTICE PERFORMANCE

• Acquiring a new skill usually follows four general trends
  – Linear curve
  – Negatively accelerated curve
  – Positively accelerated curve
  – S-shaped curve
  – Typical performance curve
Linear Curve

Performance Outcome

Proportional increase in performance over time

Time or Trials

Chapter 10
Negatively Accelerated Curve

Early improvement but slows during latter practice

Performance Outcome

Time or Trials

Chapter 10
Slight gain early but great improvement later

Performance
Outcome

Time or Trials

Chapter 10
S-Shaped Curve

Combination of performance curves

Performance
Outcome

Time or Trial

Chapter 10
Performance is erratic but improving

Chapter 10
Rate of Improvement

• Negatively accelerated patterns is more typical of motor skill learning than other patterns.
  – Early in practice we experience a lot of success but later in practice amount of improvement rate decreases. (Snoddy’s Power law of practice)
  – The rate in improvement is task specific
ASSESSING LEARNING BY RETENTION TESTS

• A common measure to assess the performance characteristic of the persistence characteristic of improved performance

• Typical Administration of a retention test
ASSESSING LEARNING BY TRANSFER TESTS

• Assess the performance characteristics of *adaptability aspect of performance change*.

• Performing a practiced skill in:
  – Novel context (feedback and physical environment changes)
  – Novel skill variations (cup or glass, fast or slow, harder or softer)
Assessing Learning from coordination dynamics

- Stability and consistency of the coordination pattern is an important criteria.

- Our coordination pattern of the movement changes to what is required.
Change in movement coordination

• We need to free the degrees of freedom so movement can be fluid.
• At the beginning, our limb-segmentation (joints and muscles) are frozen (move as one unit)
• Later in learning, our limb-segmentation becomes functional or unfrozen (move in a cooperative way)
Altering an old or preferred coordination pattern

• We possess a preferred way to perform many motor skills.

• When acquiring a new coordinated pattern to a already learned skill there is transition period.
  – Initially we will resist (continue to perform in the preferred way - biases)
  – There will be period of instability in limb movement.
  – Eventually we will adopt the new preferred pattern

• We need to provide extra…extra motivational reinforcement and feedback during the transition period.
PRACTICE PERFORMANCE MAY MISREPRESENT LEARNING

• Practice performance may overestimate or underestimate learning

• Performance Plateaus- period during which no improvement is observed

Continued
Why do performance Plateaus occur?

• Plateaus are performance rather than learning plateaus.
  – Plateaus may be a period where the learning is attempting new strategies
  – Period of low motivation
  – Period of fatigue
  – Period of low attention
  – Ceiling or floor effect
Summary/Professional Practice

• Look for improvement and consistency when practicing
• Plot performance curves during practicing
• Practice performance usually under or over inflate performance. Eliminate this problem by using a retention or transfer test.
• Performance plateaus can occur but realize learning has not stopped