

## How does the acquisition of skill affect performance?

Students learn about:

- stages of skill acquisition
  - cognitive
  - associative
  - autonomous
- characteristics of the learner, eg personality, heredity, confidence, prior experience, ability
- the learning environment
  - nature of the skill (open, closed, gross, fine, discrete, serial, continuous, self-paced, externally paced)
  - the performance elements (decision-making, strategic and tactical development)
  - practice method (massed, distributed, whole, part)
  - feedback (internal, external, concurrent, delayed, knowledge of results, knowledge of performance)
- assessment of skill and performance
  - characteristics of skilled performers, eg kinaesthetic sense, anticipation, consistency, technique
  - objective and subjective performance measures
  - validity and reliability of tests
  - personal versus prescribed judging criteria

Students learn to:

- examine the stages of skill acquisition by participating in the learning of a new skill, eg juggling, throwing with the non-dominant arm
- describe how the characteristics of the learner can influence skill acquisition and the performance of skills
  - design a suitable plan for teaching beginners to acquire a skill through to mastery. The plan should reflect:
    - appropriate practice methods for the learners
    - the integration of relevant performance elements
    - an awareness of how instruction may vary according to characteristics of the learner
    - how feedback will be used as learners progress through the stages of skill acquisition
- develop and evaluate objective and subjective performance measures to appraise performance

# Stages of skill acquisition

The learning of motor skills has been categorised into a three-stage process:

- the cognitive or planning stage
- the associative or practice stage
- the autonomous or automatic stage.

- Cognitive – a learning stage where the basics of a skill are learned. There are many gross errors as the athlete begins to form a basic mental image of what is required and a fundamental motor pattern of the actual skill. Feedback should be external, using many demonstrations and clear explanations. Complex skills should be broken down into their component parts.

- Associative – a practice stage where basic skills are now developed and are refined by using them in modified games to increase proficiency. Plenty of practice and increased use of intrinsic feedback are used as motor patterns develop. Errors are less gross and frequent, and the athlete has some understanding of why it happened.

- Autonomous – a competitive stage where skills can be executed without intentional thought, and the focus is on strategic and tactical development. Feedback is largely intrinsic, as players have highly refined motor patterns.

# Outcomes p240

- In your group, choose a stage to be the 'expert' on.
- Write characteristics of that stage on a post-it note (get info from Table 8.1 Outcomes).
- Choose one person to time, one person to correct, one person to place the characteristics that relate to that stage under the related heading.
- See who can place all characteristics under each heading correctly the quickest.

## Cognitive

*Characterised by thinking about what they are doing, has large frequent errors and the movement is jerky and robotic – a toddler taking her first steps or what most people look like trying to throw with their non-dominant hand.*

## Associative

*Characterised by thinking about how the skill is performed, less frequent and smaller errors, and a fluid movement – a frequent recreational soccer player's kick.*

## Autonomous

*Characterised by a lack of thinking, the movement is fluid and natural. The athlete can focus on other aspects of the competition – an elite tennis player doesn't thinking about their serve, but which type of serve to use and where to place it to beat their particular opponent in this wind.*

**Table 8.1:** The three stages of skill acquisition

Cognitive stage	Associative stage	Autonomous stage
Identified as the basic or understanding stage of skill learning	Identified as the intermediate or practice stage of skill learning	Identified as the advanced stage at which skills are performed reflexively
Focus on <i>what</i> to do	Focus on <i>how</i> to do the skill	Focus on <i>other tasks</i>
Frequent large errors	Some errors but not so large	Few errors
Learner is often unable to recognise error.	Learner is able to recognise errors.	Performer is able to detect and correct errors as they occur.
Learner needs to see, feel and experience the movement.	Learner needs to practise.	Performer needs to adapt the movement to pressure situations.
An exploratory stage	Kinaesthetic development improved through practice	Movements rehearsed under varying conditions
Demonstration is the best means of communication.	Demonstrations are important.	Demonstrations are only essential to refine particular movements.
Learners must identify subroutines.	Emphasis is on temporal patterning. The player will know the subroutines and is competent in assembling them into the required skill.	Temporal and sequential patterning of subroutines is automatic.
Slow learning speed and inefficient movement	Moderate speed and reasonably efficient movement	Speed and efficiency that relate to the specific requirements of the situation
Support from teaching aids (demonstrations, pictures, videos, etc.) is required to enhance visualisation of the skill. The teaching focus is conceptualisation.	Further improvement requires practice of set patterns of movements in controlled situations.	Improvement requires manipulation of the environment (for example, increased game pressure) to ensure the skill is able to be reproduced under varying conditions.



- <https://www.youtube.com/watch?v=2uTGOWz4FFg> (5 mins) Good demonstrations of performances in each stage.