

MOTOR LEARNING AND COACHING



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STAGE 2 PHYSICAL EDUCATION

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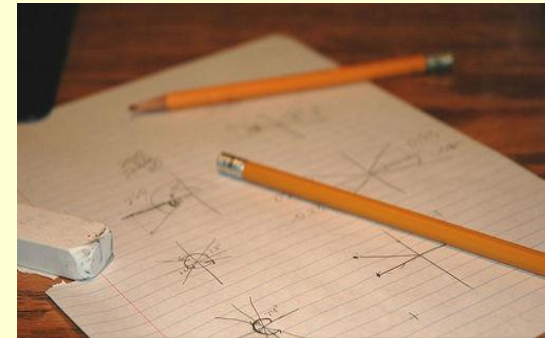
Skill Definition

Skill is the “learned ability to bring about predetermined results with a maximum of certainty, often with a minimum outlay of time or energy, or both” – Knapp

Skill Categories

There are 3 basic categories of skills;

1. Cognitive skills involving primarily the brain eg reading, analysing a problem.
2. Perceptual skills involving how an individual interprets stimuli eg two players receive the same information from the environment but interpret it differently. Correct interpretation of stimuli improves performance.
3. Motor skills involving physical movement eg catching, throwing, running.



Fine motor skill

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Gross motor skill

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Classification Of Motor Skills

Closed Skills

- Take place in a stable, predictable environment where critical information does not change during the performance of the skill.
- The skill is pre – learned, rehearsed movement pattern, that the performer tries to reproduce the same way every time eg diving, floor routine in gymnastics, shot putt.
- The environment has little influence on the performer.



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Golf is a closed sport as the environment is stable and does not change during the performance.

Decision making is done prior to performing the skill.

Open skills require flexibility and adaptation in the execution of a skill under time pressure eg netball.

Closed skills require repetition of a successful movement pattern eg golf.



Classification Of Motor Skills

Serial skills

- Made up of a number of discrete skills which are put together in a certain order eg changing gear on a manual car involves the production, in the correct sequential order, of several discrete skills – clutch, gear shift, accelerator.



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Serial Skill – Changing up gears

1. Clutch in
2. Back off accelerator
3. Change gear stick position
4. Clutch out
5. Accelerate

Must be done in order for successful outcome

- A sporting example of a serial skill is a floor routine in gymnastics where the performer joins together many discrete skills to make up the routine.

Continuous skills

- Do not have a clear beginning or ending and it is impossible to define exactly where the skill starts and where it stops . e.g. – cycling, jogging



Classification Of Motor Skills

Simple skills are quickly learned, often by imitation of the demonstration compared with complex skills which require a longer learning and practice time.

- Simple skill – passing a ball to a team mate at training.
- Complex skill – passing a ball to a team mate in a game situation

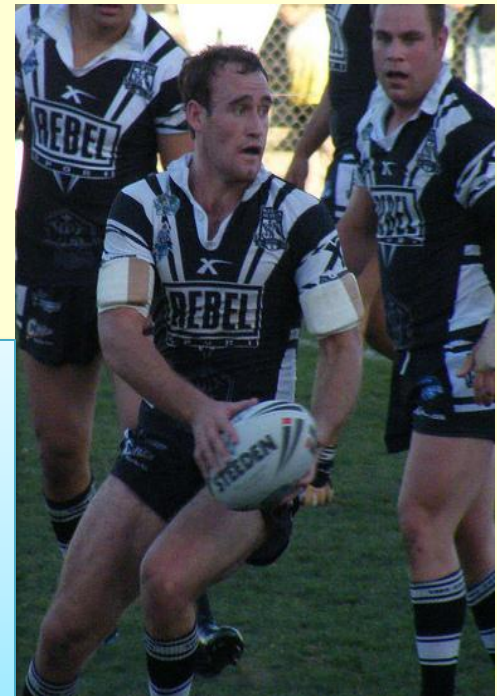


Simple skill

- No time pressure
- One cue only
- No opposition players
- Speed not important
- Accuracy important

Complex skill

- Time pressure
- Many cues
- Many available responses
- Speed important
- Accuracy important



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Classification Of Motor Skills

5. The Pacing Continuum

This continuum is based on how much control the performer has over the timing of when the skill will occur.

Internally - paced or self – paced skills occur when the performer determines when to start the skill eg a golf shot, diving off the board.

Externally paced skills occur when the performer produces a skill at a time determined by an external source eg a sprint start, a block in volleyball.



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Internally paced skill

The timing of the start of the shot is determined by the player



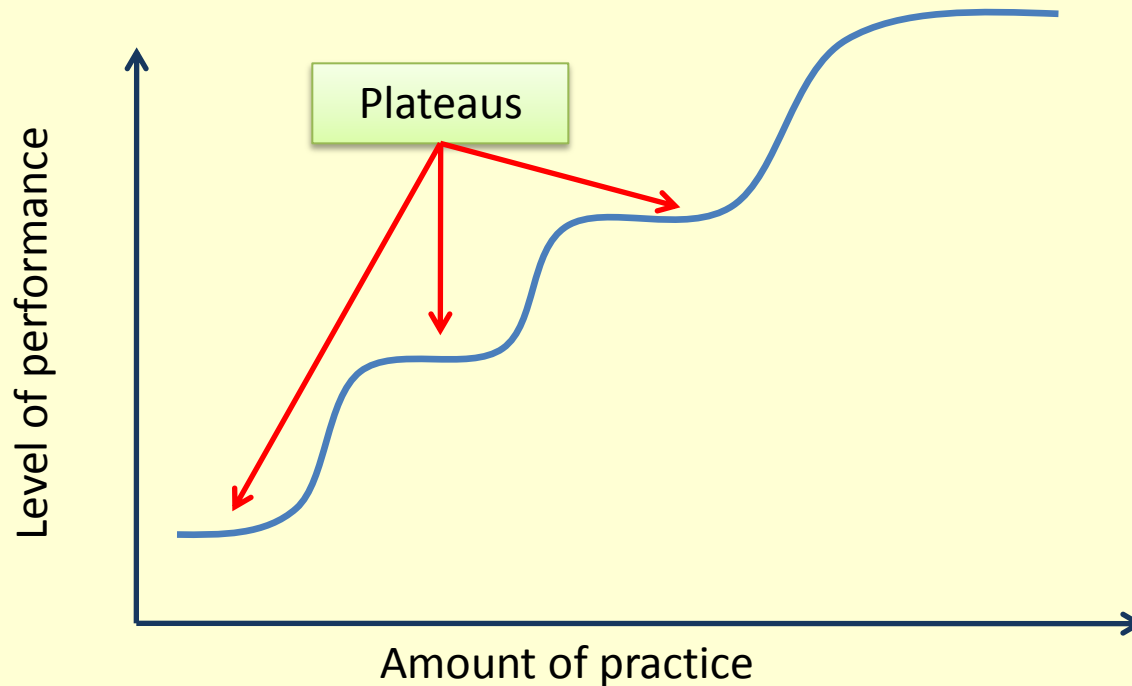
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Externally paced skill

The timing of the execution of the block by the Brazilian player is determined by the movements and actions of the spiker



LEARNING CURVES



A plateau occurs when there is no improvement in performance despite practice still occurring. This can be a very demoralising period for the performer when practice does not improve performance.

A plateau can represent a period of consolidation of a newly acquired skill.

With ongoing training, performers will continue to improve as long as the plateau has not occurred as a result of the performer having reached the limit of their ability eg the athlete cannot run any faster and has reached the physical limit of their performance



Types of Cues used To Improve Performance

Examples of how high level performers use visual cues to improve performance ;



- The server would see that Ana Ivanovic is standing very wide on the service court and has left a big gap down the centre of the court

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- Batsmen observe the grip the bowler has on the ball and where the shiny side of the ball is located to work out what sort of delivery the bowler is attempting to deliver.

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- Some players analyse the stance, grip, service position and ball toss of their opponent to try and determine what type of serve is being attempted.



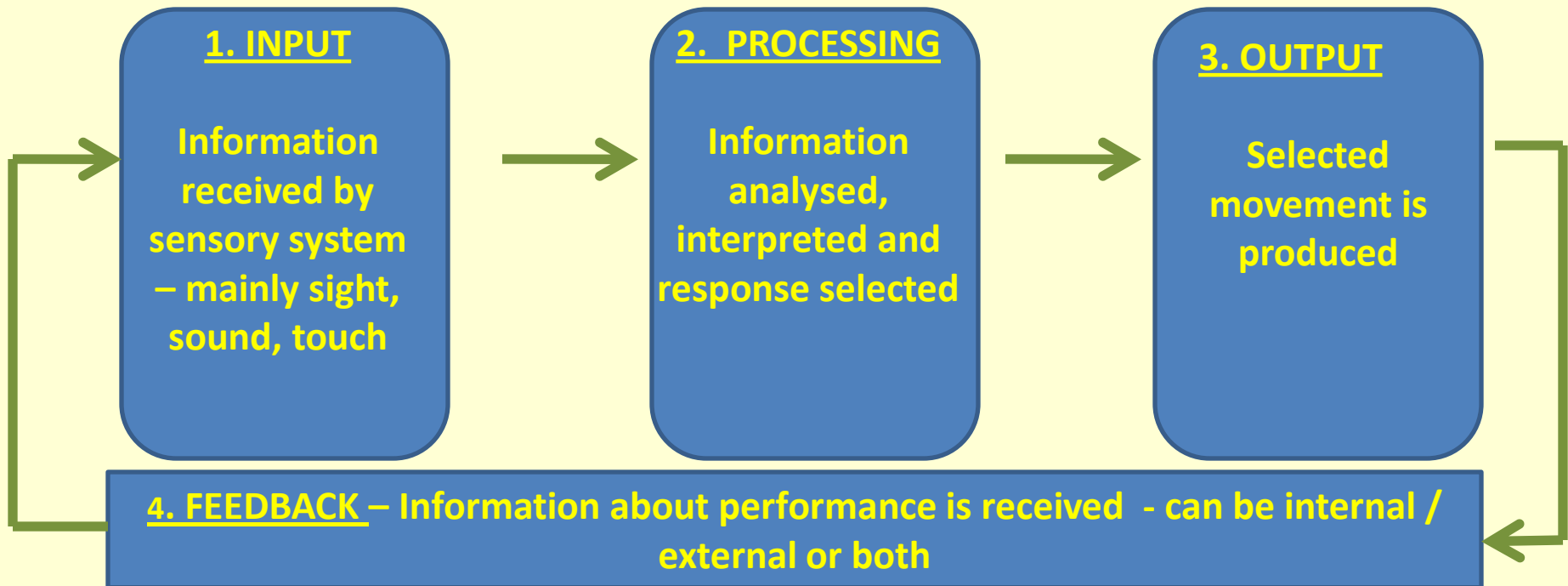
Phases of Information Processing

Information Processing

Information processing describes how performers;

- Take in large amounts of information from the environment
- Analyse and interpret the information
- Make decisions about what response to make

The information processing model is a 4 stage process



A simple Information processing model



Phases of Information Processing – Sensory Input

STAGE 1: INPUT

This stage involves the sensory mechanism detecting signals / cues in the environment (also known as the “display”).

Information is received from the environment via;

- Sight
- Sound
- Touch
- Proprioception
- Equilibrium

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Much of the information received from the environment is received by the eyes

The information is gathered from both internal and external sources.

Much of the information received is irrelevant to the performer and discarded.

Relevant information is sent to the brain for further analysis and processing.



Reaction / Movement / Response Time

The importance of response time varies from sport to sport – in some sports such as golf, it is of little importance but in others it is critical to a successful outcome.



Ice Hockey

Reaction Time: Time between detecting the cue (the puck) and initiating a movement in response.

Movement Time: Time taken from initiating movement until the movement is complete

Response Time: If the response time is too slow, the puck will be in the back of the net before the response is complete.



The Information Processing Model in Action

Example of the Information Processing Model in Golf;

Stage 1 - The Sensory Mechanism

Gathers information from the environment and sends it to the brain

Stage 2 - Perceptual Mechanism

- Examines the environment;
 - Wind speed and direction
 - Slopes
 - Position of bunkers
 - Other contributing factors
- The perceptual mechanism will also later interpret;
 - Knowledge of results
 - Knowledge of performance



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Bunkers
Wind
Sloping green
Water hazard

Analysed by
perceptual
mechanism



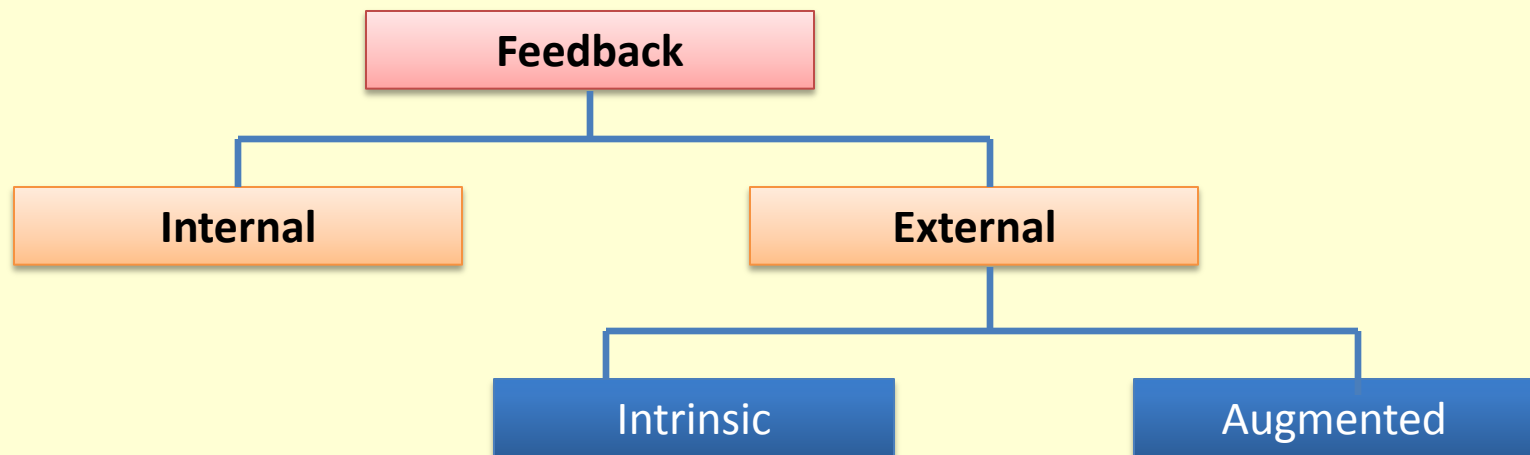
TYPES OF FEEDBACK

External Feedback

External feedback is information received from outside the body. It is received by the sensory system and is seen, felt or heard.

External feedback can be;

- **Intrinsic** – a performer sees her shot at goal miss the target. This feedback is a direct consequence of the performer's actions.
- **Augmented** – this is additional feedback provided by an external source. It provides additional information to the performer eg the coach tells the player that she missed the shot at goal because she had no follow through. Use of video playback is a very useful form of augmented feedback.



FORMS OF FEEDBACK – KNOWLEDGE OF RESULTS

2. Knowledge of Results

Objective feedback which provides the performer with information regarding the success of their performance in achieving a desired outcome. It is an analysis of the result or outcome of the movement.

Knowledge of Results



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