Skill acquisition

Skill, ability and performance

The more **ability** an individual has, the easier it will be to learn **skills** that utilise that ability.

As **learning** takes place, we usually see a gradual improvement in **performance**.

A **skilled performer** is mentally prepared, focused, determined, confident, consistent, technically sound, accurate, precise and efficient.

Skills can be classified into the following continua: **pacing** (internal/external); **difficulty** (simple/complex); **organisation** (low/high); **continuity** (discrete/serial/continuous); **muscular involvement** (fine/gross); and **environmental influence** (open/closed).

Learning processes

Fitts and Posner (1967) describe three stages of learning:

The cognitive phase: visual demonstrations and clear verbal explanations are most important.

The associative stage: the learner has a mental picture of what is required but still makes mistakes.

The autonomous stage: movement patterns are performed competently and have become automatic.

Plateauing can be **caused** by lack of skill, information overload, fatigue and a lack of motivation.

Plateauing can be **reduced** by rewards, appropriate practice and effective feedback.

Methods of practice

Imagery/visualisation: the athlete visualises themselves performing a skill without performing it. Mental practice can improve performance but cannot replace physical practice. It uses the following factors: **cognitive**, **neuromuscular** and **confidence**.

Fixed practice: conditions are closed, repeating the same activities.

Variable practice: includes a range of different experiences relating to the full activity.

Massed practice: involves practising a skill repeatedly over an extended period of time until it is mastered.

Distributed practice: includes intervals between activities used for rest or mental rehearsal.

Whole practice: a skill is taught without breaking it down into parts or subroutines.

Part practice: the skill being learned is split up into subroutines, and each part is practised separately.

Progressive part practice: different components are put together to make up the whole performance.

Motor programmes and reaction time

Motor programmes are a series of subroutines organised into the correct sequence to perform a movement. These are stored in long-term memory and retrieved when performing a skill.

Closed loop theory focuses on intrinsic feedback/errors detected and possible correction during performance.

Open loop theory focuses on all the information being sent as a single message for the movement. It is not reliant on feedback.

Response time = reaction time + movement time

Hick's law: the more choices a person is presented with, the longer it will take them to process the information and reach a decision, meaning a slower reaction time.

Psychological refractory period (PRP): this refers to the time it takes to react once an individual has realised that they have responded in an incorrect way and need to change their response. The PRP is the time taken to change your mind.

Reinforcement

Behaviourism: operant conditioning is achieved through reward or punishments. There are three responses to an athlete's behaviour: **positive reinforcement**, **negative reinforcement** and **punishment**.

Drive reduction theory: an athlete's **drive** (motivation) will impact on the successful completion of a task. When the goal is achieved, the drive is reduced.

Feedback: the information available to the performer during or after a performance.

Functions of feedback include **motivation**, **reinforcement** and **informing**.

Feedback is most **effective** when it is **accurate**, **concise**, **immediate**, **clear** (easily understood), **frequent** and **truthful** (has integrity).

Feedback can be **intrinsic** or **extrinsic** (**KP** or **KR**).

Skill acquisition

Methods of guidance

Visual: used in all stages of learning; particularly valuable in the cognitive stage; includes physical demonstrations by the coach or other performers.

Verbal: often used in conjunction with visual guidance; used by coaches to explain the task and describe the actions involved; also used effectively to highlight important performance cues.

Manual: involves physical contact or support; often used when there is an element of danger or to take the performer through the movement.

Mechanical: involves using equipment to aid the learning process.

Theories of learning and the transfer of learning

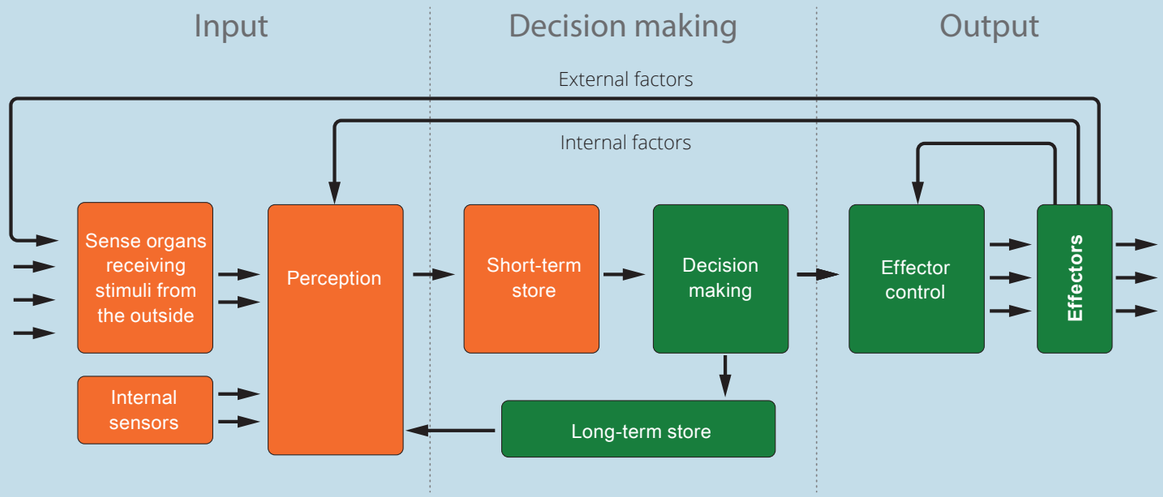
Social learning theorists believe that we learn by **observing** other people with coaches mainly using **demonstration** and learners modelling the behaviour.

Bandura (1977) suggests that there are **four processes** in observational learning: **attention** processes, **retention** processes, **motor** reproduction and **motivational** processes.

Transfer of learning is the effect that learning one task has on the learning of another. It can take many forms. These are **positive** transfer, **negative** transfer, **zero** transfer, **bi-lateral** transfer, **proactive** transfer and **retroactive** transfer.

Models of information processing

Whiting's Model:



Whiting's Model: splits information processing into **four** stages: **receptor system, perceptual mechanism, translator mechanism** and **effector mechanism**.

Information processing can be improved by **developing sensory input/selective attention, improving memory, improving decision-making, improving reaction time by developing anticipation** and the use of **feedback**.