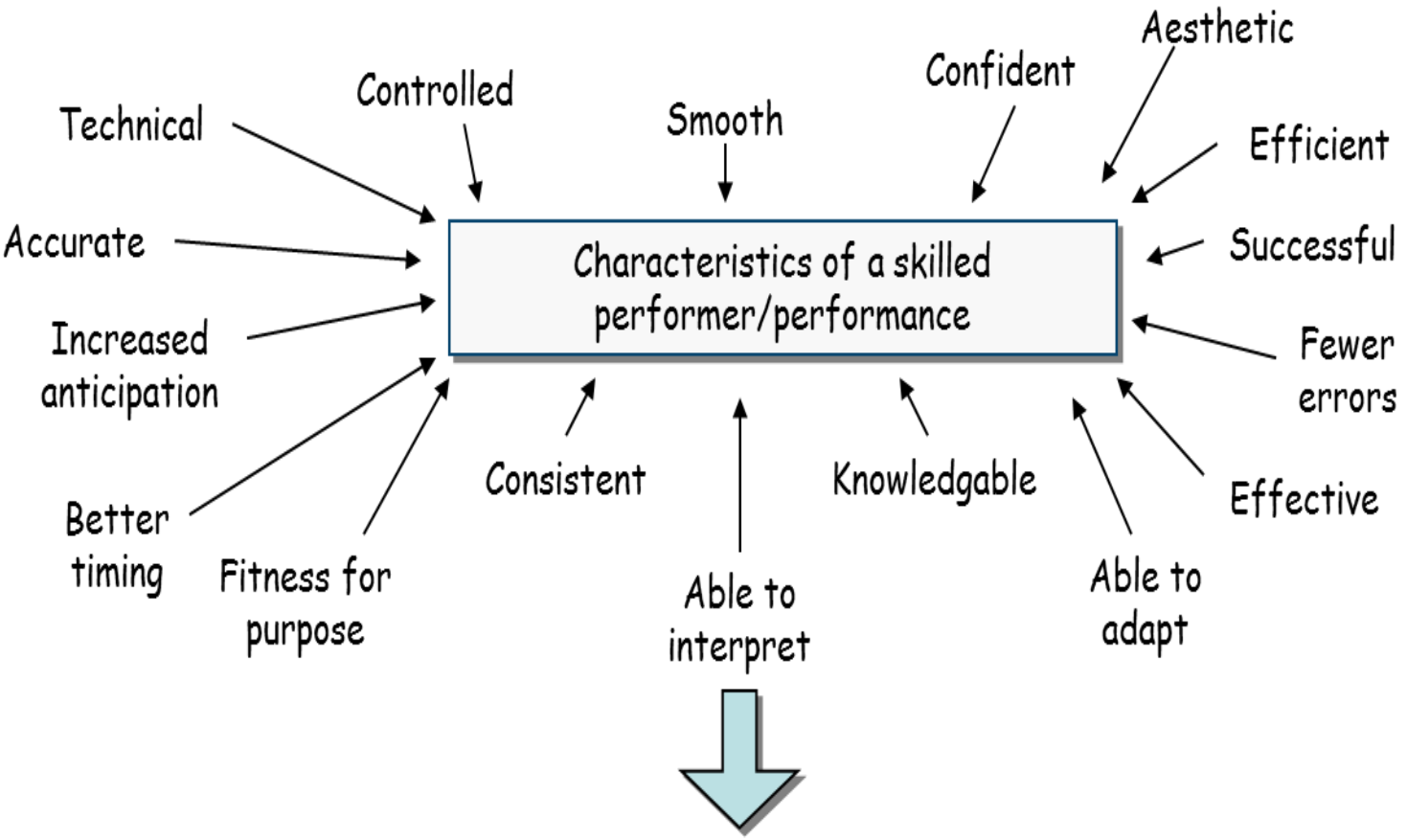
Learning and Skill

Match the ability which is important for performing the following activities well:

Activity	Ability
Badminton serve	Co-ordination
Handstand	Balance
100m sprint	Speed
Feint dodge (netball)	Agility
Fencing	Reaction time
Javelin	Power

Learning and Skill



Maximum output with minimum outlay of energy and time

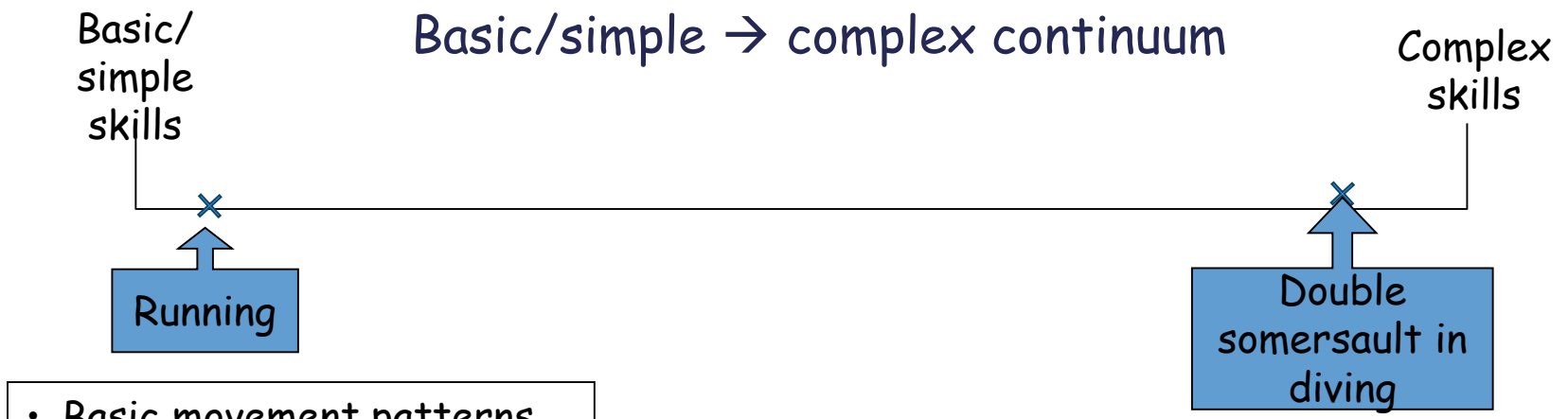
Types of Skill

Two significant factors which distinguish the level at which people take part in physical activity are:

SKILL
FITNESS

There are many different types of skill and their use depends on the nature of the physical activity.
Skill can be classified as:

BASIC/ SIMPLE ---------- COMPLEX
OPEN ---------- CLOSED



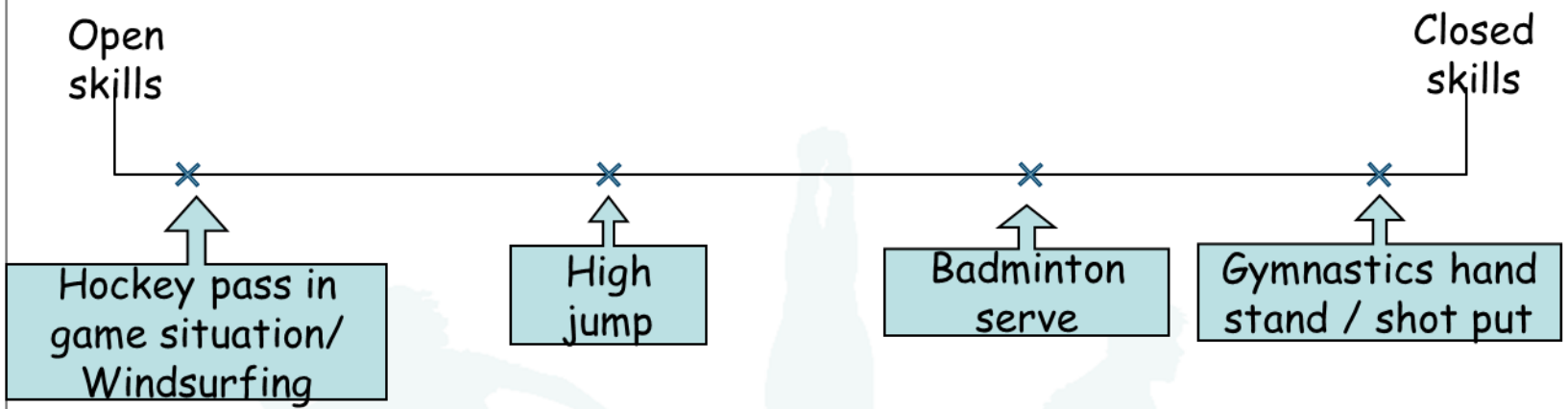
- Basic movement patterns
- Limited amount of information to process and a smaller cognitive element

- Involve more decision – making
- Bigger cognitive element (more thought)

Types of Skill

Types of skill

- Open – closed continuum



- Skill that is affected by the environment
- Requires adaptability from performer to suit the needs of the environment
- Open skills needed where you cannot control what will happen next
- Decision making required

- More information to process.
- Used in a fixed environment
- No outside influences
- Can become a habit
- Can control what happens next
- Less decision making required

Types of Skill

CLOSED Skills can also be seen in open situations:

(1) Serving in Badminton. Badminton is an open activity, however the serve is a closed skill. A badminton serve always has the same actions, but the player can change the timing and placing of the shot according to the opponent's stance. This can be done from memory and from his weaknesses. This skill, therefore, is partly closed and partly open.

(2) High Jump – the jump itself is closed but the run-up is influenced by the surface, weather, crowd and height of the bar.

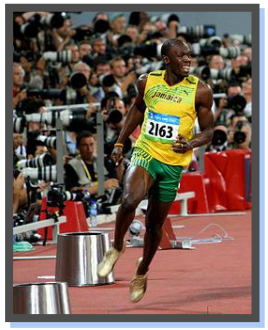
ENVIRONMENT
the influences which decide to what extent a skill is open or closed:

VENUE – OPPOSITION – OWN TEAM – TYPE OF COMPETITION – STAGE OF THE GAME – STATE OF THE GAME – WEATHER – SURFACE – CROWD – EXTENT OF PRESSURE.

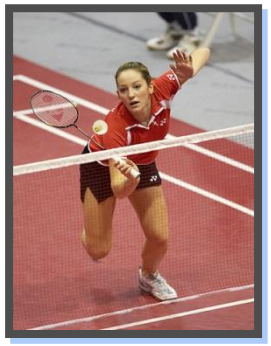
Types of Skill

Basic Skill

http://www.youtube.com/watch?v=yEPGDNtcLrk&NR=1&feature=fvwp



http://www.youtube.com/watch?v=By1JQFxfLMM



http://www.youtube.com/watch?v=6t7BJ3K0KEc

Complex Skill

Swimming –is a closed skill the action is repeated over and over again –very few things affect the skill – sometimes the pressure of an opponent being ahead of you in a race will make you lose some quality in the technique or waves from another swimmer in the next lane.

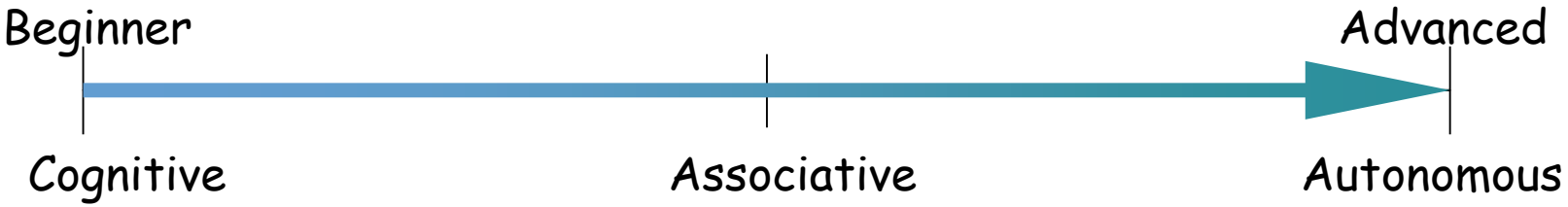
Netball game- some netball skills are fairly closed eg shooting the action is the same each time otherwise you would lose accuracy. Most of the skills are performed in an open situation because the game is always different eg you have different opponents, the weather can affect if outside eg very windy =no overhead passes. Your teammate will be in different positions to receive the pass.

Cognitive Phase	Associative Phase	Autonomous Phase
Beginner	Improving	Expert
Needs to understand what to do	Techniques have been learnt	Skills have become automatic
Many errors and mistakes are made	Some errors made	Few errors made and can be self-corrected
Performances are inconsistent	Performances are becoming more consistent as motor programmes are being formed	Performances are consistent, fluent and aesthetically pleasing

Learning and Skill

Skill and stages of Learning

- To become skilful a performer has to spend time learning, practising and being guided.
- The learning process has to match the experience of the performer in terms of understanding, awareness and ability.
- There are 3 stages of learning, progressing from the beginners stage to the expert stage of performance.



Learning and Skill

The age and experience of a person are contributing factors when deciding whether a skill is Basic or Complex e.g. catching or throwing a ball may be a basic skill for a teenager but a very complex skill for a young child.

The process of LEARNING depends on the individual.

Teaching/ Coaching – needs to match the development of each performer, otherwise the learning process is slowed down because of unreasonable demands and pressure.

Learning and Skill

COGNITIVE PHASE (beginners) 1	ASSOCIATIVE PHASE (improving) 2	AUTONOMOUS PHASE (expert) 3
➢ The beginners needs to understand what to do ➢ A clear mental picture of the activity is required ➢ A lot of time must be given to performing the technique ➢ Outcome isn't so important at this time ➢ The beginners need to be shown and told what to do ➢ Clear demonstrations, simple and not overloaded instruction ➢ Many mistakes will occur, help would be needed to learn from the mistakes ➢ Praise is important in feedback	➢ Techniques have been learnt ➢ Concentration on the skill ➢ Performance of the skill improves ➢ Fewer errors made ➢ Some ability to understand and correct the errors ➢ Better able to deal with more information and more complex information ➢ Both Internal and External Feedback used to improve performance	➢ Skills have become automatic ➢ Allows for more concentration on the outcome of the skill and to the tactical and strategic decisions of the activity ➢ Few errors, and they can be self-corrected ➢ Coaching only needed for the finer details of skill and tactics. ➢ Consistency is high, movement is smooth and fluent ➢ Intense practice needed

Learning and Skill

Skills are learned - 'learning results in a more or less change in behaviour'

When learning and playing a sport the INFORMATION PROCESSING SYSTEM is used

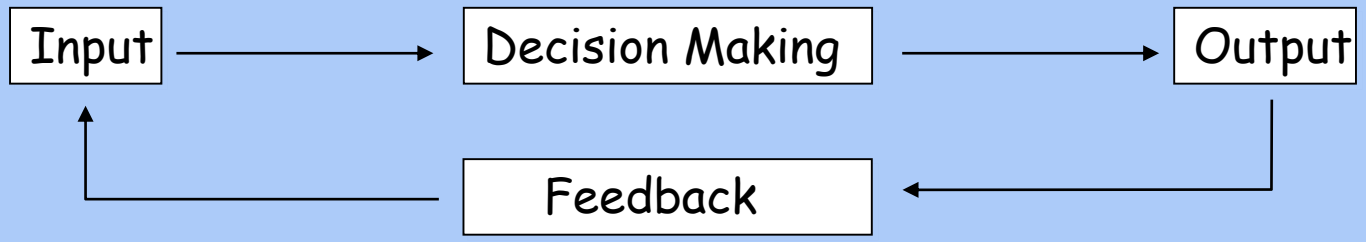
SENSES - INPUT

BRAIN – DECISION MAKING

BODY – OUTPUT

FEEDBACK is the response to the output and is the information which can affect future performances and enable learning to take place.

Basic model of information processing



Learning and Skill

INPUT

Input is the incoming information – VISUAL, AUDIO, TOUCH (SENSES)

A large amount of information is also received from PROPRIOCEPTORS in muscles, tendons and joints, ears and skin - mainly concerned with movement, body position and balance.

The brain processes all of the information received and makes a decision.

Focussing on the information that is important and ignoring the information that is of no use is called SELECTIVE ATTENTION – e.g. the speed of a game is important, the noise of the crowd is not.

Experience helps with selective attention.

PERCEPTION and MEMORY help with the process of SELECTIVE ATTENTION.

Learning and Skill

Decision Making

PERCEPTION is the process of INTERPRETING information and then a decision is made in response. Skilled performers use their perception to anticipate what will happen next.

MEMORY is used to search for similar previous situations.

SHORT TERM MEMORY - information can only be held here for a short time only, if not acted on it is lost - this is the 'working memory'.

LONG TERM MEMORY – important information is transferred from STM and stored here – 'the library'. It holds all memory of past experience – which influences decisions to be made.

Learning and Skill

Output

Output is movement response – the actual action taken as the result of decisions made.

If memory is holding experiences of good coaching, practice and feedback then the output is more likely to be successful.

It provides immediate FEEDBACK on how successful the action was.

Feedback:

is essential for learning to take place.
is the response to the OUTPUT and affects all actions that follow.
helps correct and improve performance making you more skilful - skills will be modified or adapted where needed and learnt.
helps to reinforce good behaviour/ actions.
can identify strengths and weaknesses in performance.
can influence the speed of learning.
can influence goal-setting.
will encourage and motivate.
enables evaluation and analysis of performance.
reinforces correct actions and analysis of performance.
reinforces correct actions and shapes future behaviour by refining technique.

Netball answer

STM

The WA failed to dodge free from the WD in the last 2 centre passes and we lost possession of the ball.

LTM

the WA always fails to receive the first 2 centre passes I a game whilst she is working out the best way to dodge free from the WA. After that she always wins the CP for the rest of the game.

Football answer

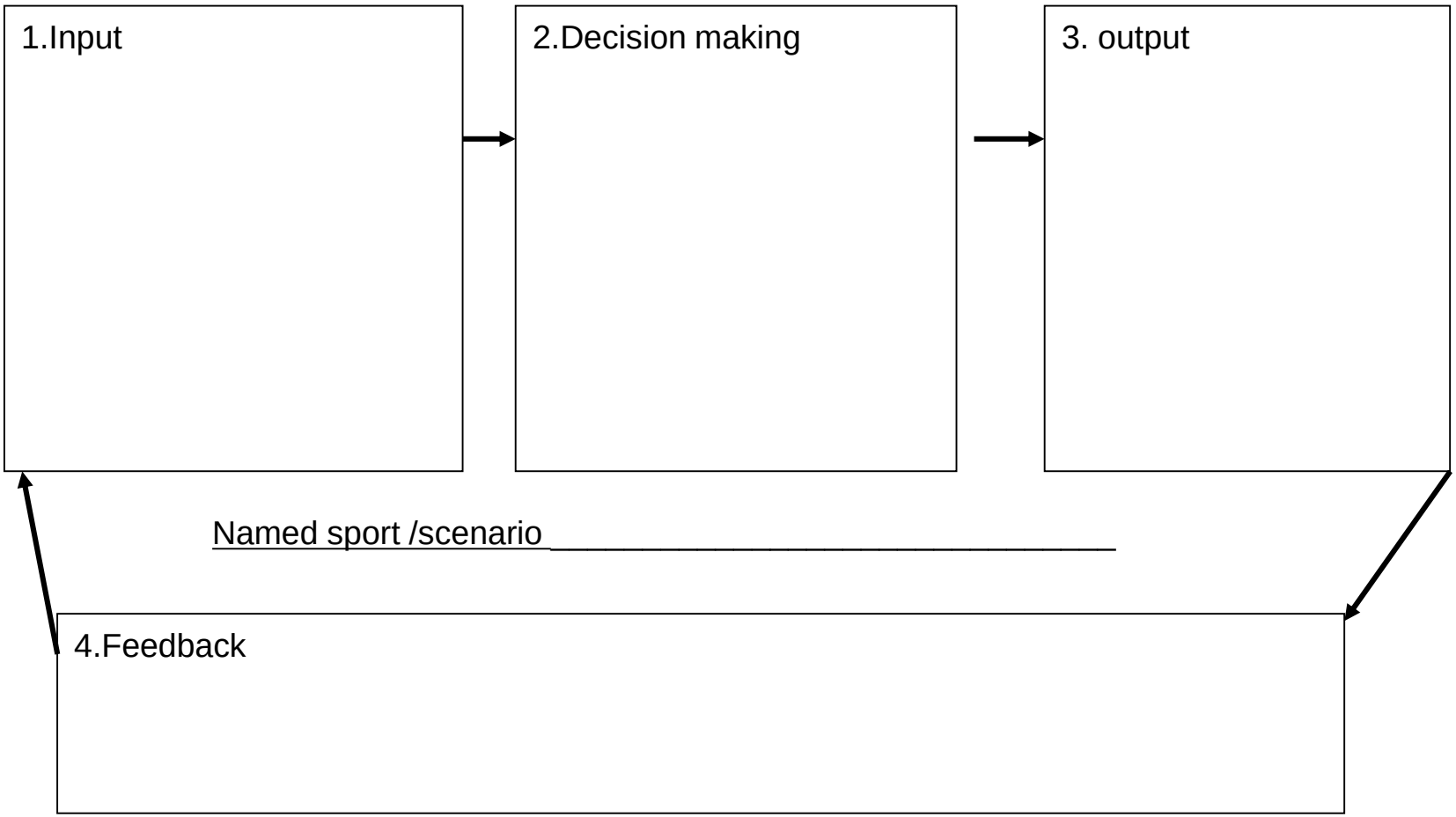
STM

The striker found space between the 2 lines of defence in the zonal marking to score with a header in the last corner. The keeper stayed on his line when he could have come to punch the ball clear.

LTM

We have only conceded 2 goals in the last 15 games using the zonal defence system.
I will tell the keeper to come off his line and try ot clear any balls in a similar area this time and keep with the zonal marking.

Learning and Skill



Learning and Skill

Importance of Feedback

"Effective feedback for a sports performer should be easily understood"

Listed are other ways in which a teacher/ coach can give feedback to make it effective for a sports performer.

accurately

truthfully

concisely

immediately

easily understood

fits the needs of the performer

positive – highlighting strengths and ways to improve perceived weakness

information giving

frequency – danger of overloading with information

analytically

Learning and Skill

INTRINSIC FEEDBACK (INTERNAL)

Information from muscles, joints, tendons, ears, skin (PROPRIOCEPTION) – about how the movement is felt. Also assessed by the senses – the 'FEELING' of the performance.

EXTRINSIC FEEDBACK (EXTERNAL)

The feedback comes from outside sources

It can be via KP – how well the process of the performance was carried out – it can be given verbally or visually. It can be partly internal as skilled performers will know how good their performance felt.

It can be KR – the outcome of the performance.
Feedback is best when both KP and KR are given. Why?
KP is vital for improvement of performance – gives reasons and suggests solutions.

Learning and Skill

- Full feedback – KR (Knowledge of Result) and KP (Knowledge of Performance)
- Use it to chance and plan for improvement
- Reinforcement
- Motivation
- Truthful

It is important to have **both KP** and **KR together** because it gives **maximum** information on how you can improve your performance. Having verbal **and** visual feedback is more helpful than just one

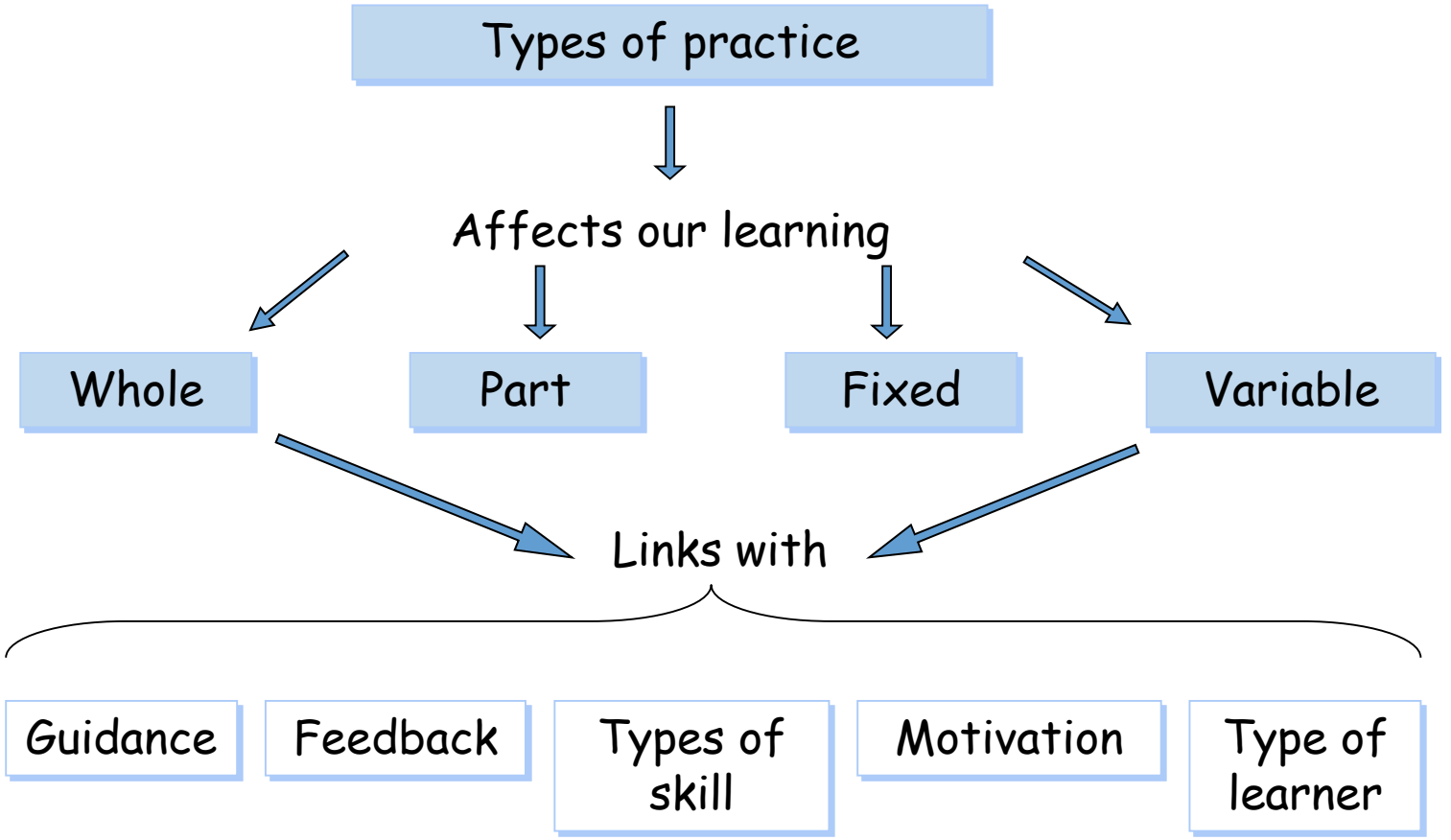
Learning and Skill

Which type of feedback should be given and when?

feedback	Which type?	When?
You can see that you need to tuck tighter in the front somersault from the video	external-visual, KP	asap after performance
Your coach will tell you need to work to improve your dodging in netball	external- verbal, KP	during game next training session
You can feel you need to perform more smoothly in hitting the rounders ball.	intrinsic, KP	immediate
You came 2nd in the race. You won the point.	external, KR	immediate
You had a 95% success rate in netball shooting.	external – written KR	soon after game/next training session.

Practice

Key facts



Practice

Practice of skills is important for LEARNING to take place
Techniques and skills are learnt by practising

PRACTICE makes skill, habitual, consistent, reliable, efficient, effective, accurate

The Type of Practice will vary depending on:

- the skill being learnt - OPEN/ CLOSED, SIMPLE/ COMPLEX
- the stage of learning that the performer is at
- motivation of the learner
- age
- time available
- facilities/ equipment available

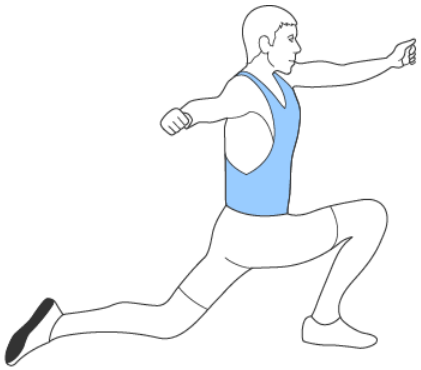
Practice

Whole Practice:

the complete skill is performed as a whole movement pattern
the skill cannot be broken down into parts e.g. golf swing
whole practice suits simple skills - performer develops a 'feel' of the skill
if possible it is best to learn a skill using the whole method because the learner does not have to learn how to put the parts together

WHOLE PRACTICE e.g. Triple Jump

http://www.youtube.com/watch?v=iyjyDViwXUU



Practice

Part practice
involves breaking the skill into PARTS, each part is practised separately and the parts are joined together
best suited to skills of a more complex nature
best to attempt whole skill first (for understanding) then learn the parts, and then put them together
transfer from PART to WHOLE may hinder learning
if skill is dangerous, then part learning is safer
part learning can be motivating - small steps of success - it allows focus on particular elements.

PART PRACTICE e.g. swimming Breast Stroke with float

1. Swimmer doing breast stroke legs with float,
2. Swimmer doing breast stroke arms with float

Practice

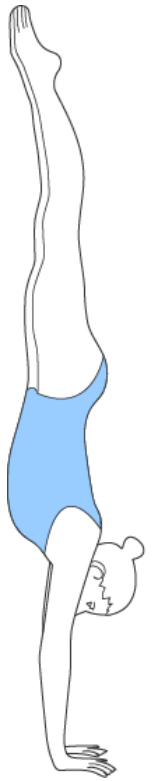
WHOLE-PART-WHOLE LEARNING

Can be used to highlight a weakness or where a skill that is hard to break down is being performed by a beginner

FIXED PRACTICE

this is a method used mainly for improving CLOSED skills e.g. gymnastic skills - forward rolls, handstands
action/ skill is repeated over and over
conditions of practice always remain the same

FIXED PRACTICE e.g. handstand



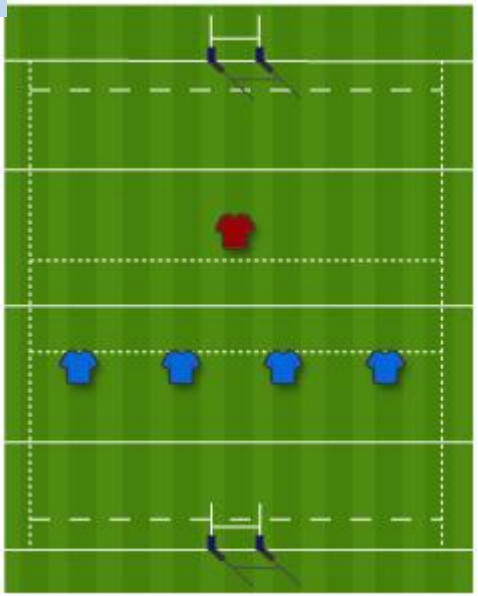
Practice

VARIABLE PRACTICE

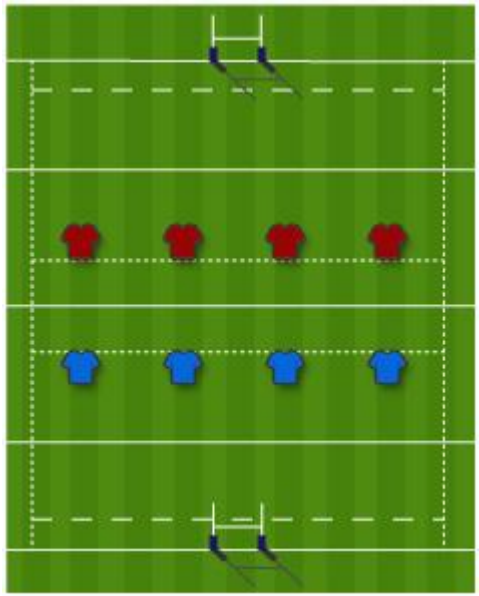
OPEN skills are best practised in conditions that can change to match the changing situations in physical activity e.g. interactive games/ football/ rugby/ netball - finding ways to score against increasingly difficult situations - 4 v 1 – 4 v 4

VARIABLE PRACTICE

4 v 1



4v 4



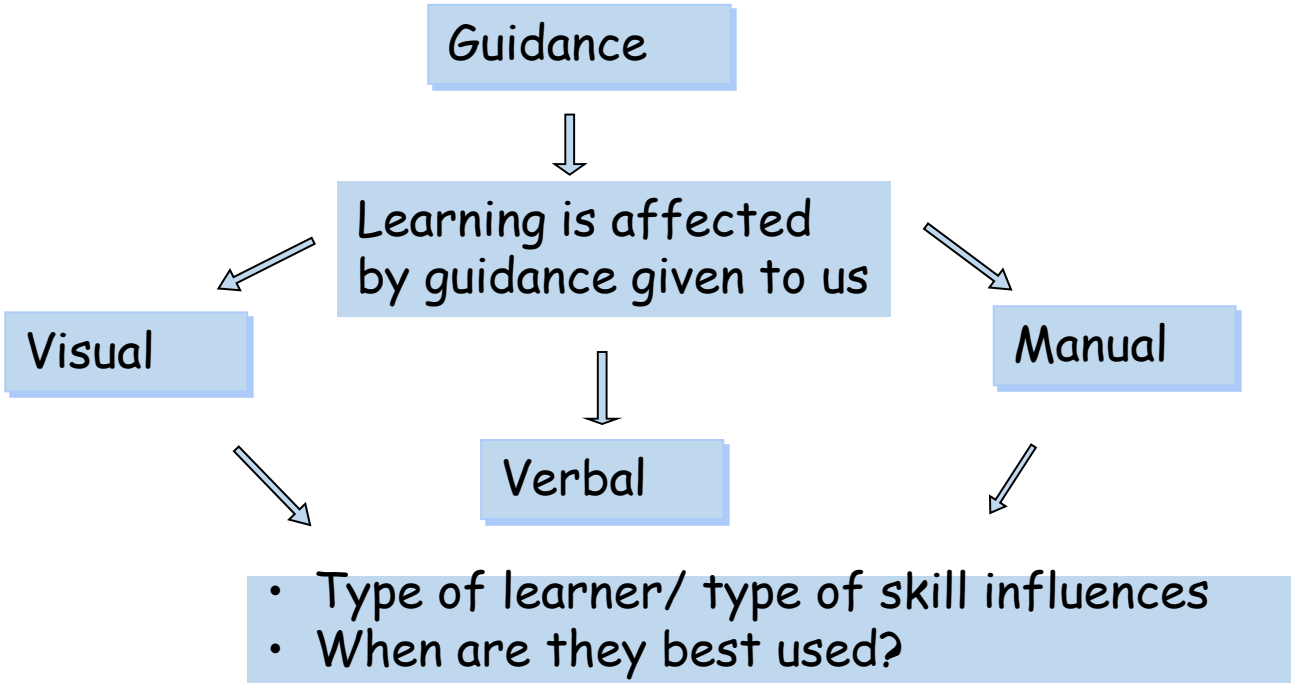
Guidance

KEY FACTS

VISUAL – guidance by seeing/ watching

VERBAL – guidance by listening

MANUAL/ MECHANICAL – guidance by support



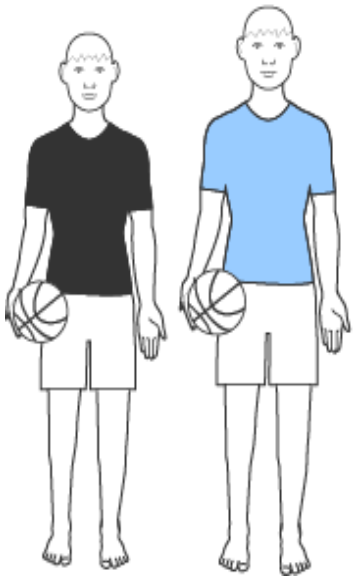
Guidance

- Guidance is part of the learning process
- Learning is affected by the guidance given and results in a more or less permanent change in behaviour
- Guidance is the help and instruction given to complete a task
- Guidance is required when new skills are being learnt and is used to improve performance
- There are three Types of Guidance – Visual, Verbal, Manual/ Mechanical

Guidance

Visual:
Demonstrations, videos, posters, wall charts.
Especially useful when learning a new skill – shows the learner the pattern of movement. Good for beginners.

- VISUAL

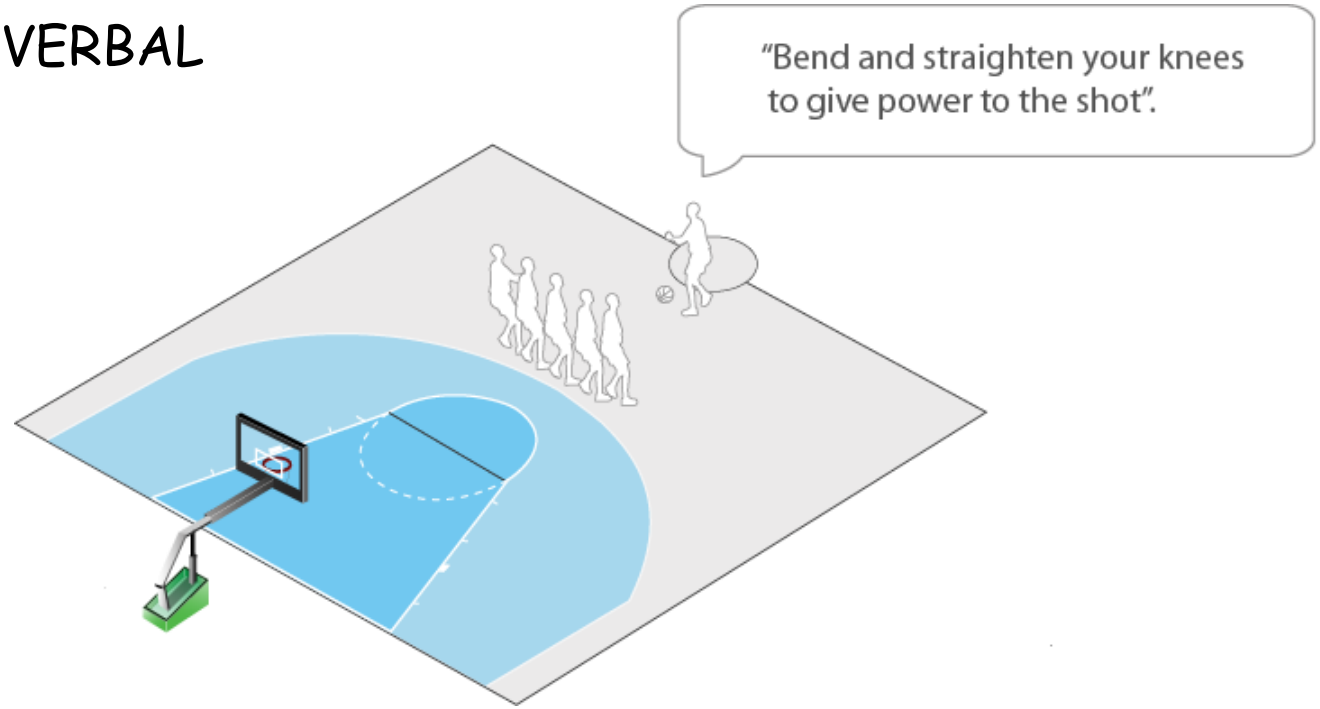


Guidance

Verbal:
Guidance listened to, instructional – can be repeated and changed to suit purpose, creating an image of the task.

The amount and quality of information given is important. Effective with small groups/ individuals or advanced groups where tactics/ positional plays are important. Often used with visual.

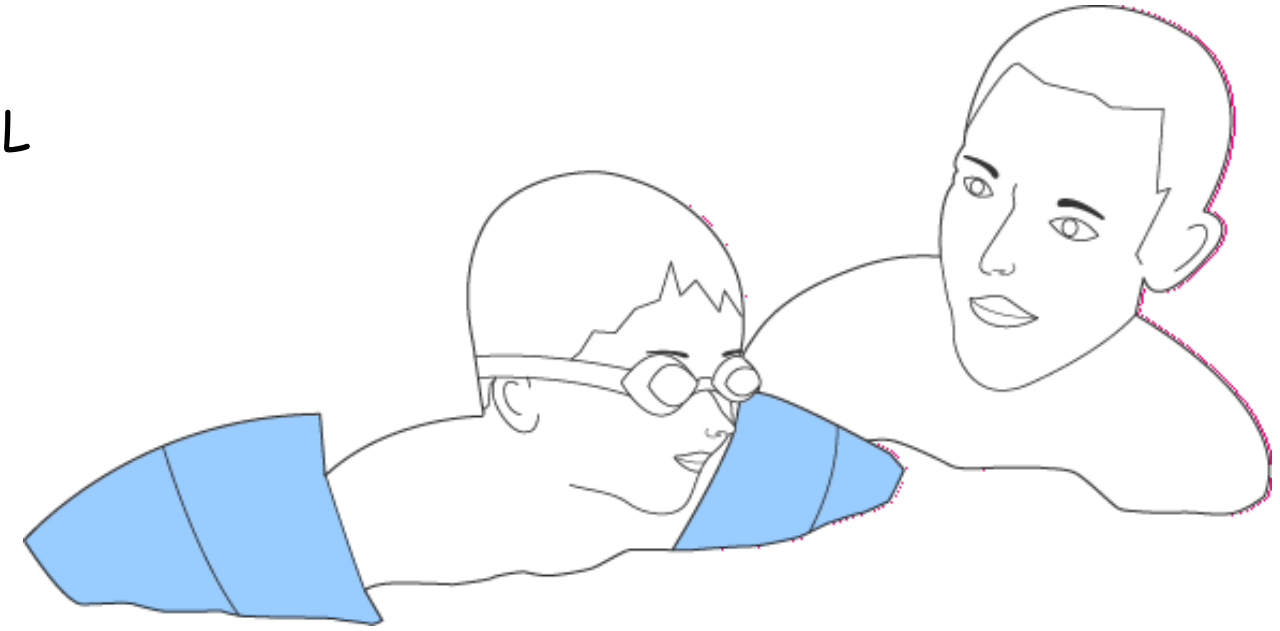
- VERBAL



Guidance

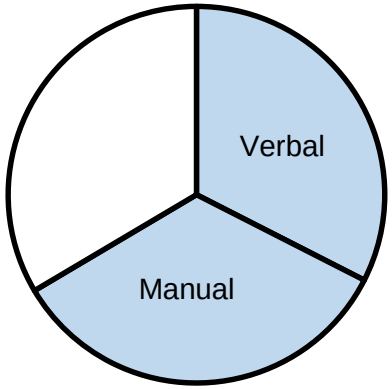
Manual/ Mechanical:
Physical support/ artificial aids/ manipulative aids.
Useful for complex or dangerous skills – reduce error, gives confidence.
Especially good for the first time performance e.g. somersault in gymnastics

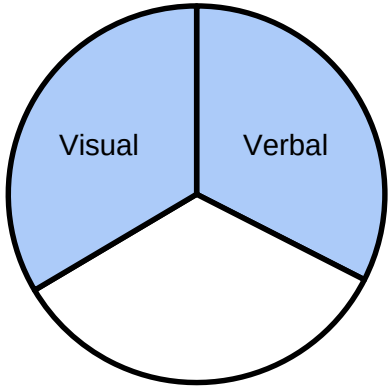
- MANUAL

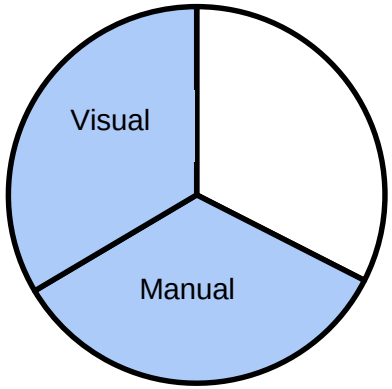


Guidance

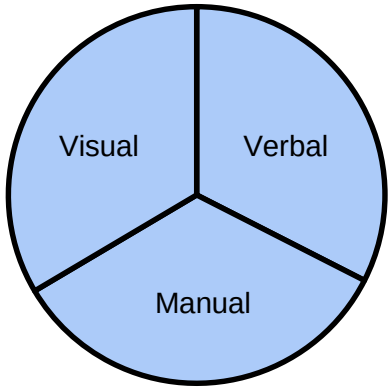
What is the best type of guidance?







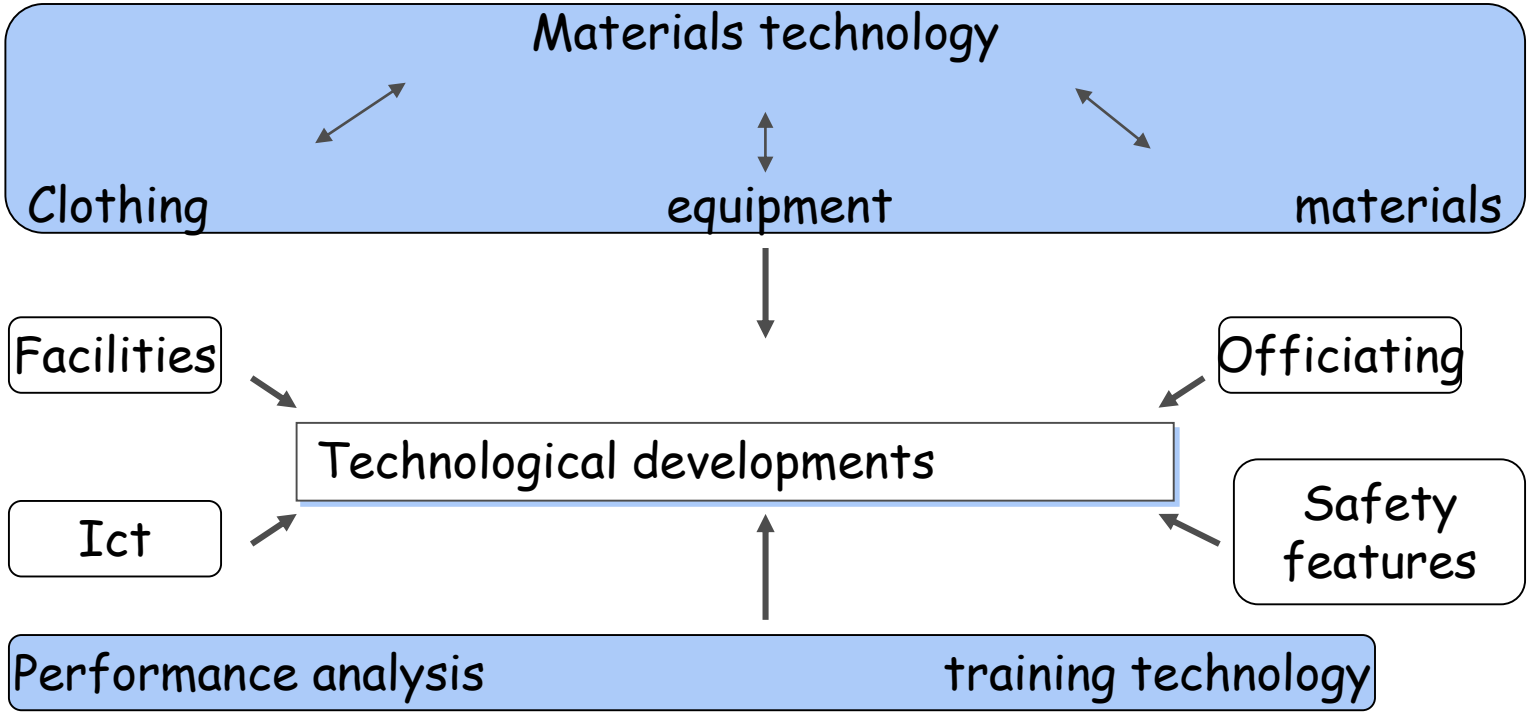
All 3 types of guidance together = best for learning



Types of guidance	How guidance can be used to improve performance
Visual	Example –your coach **shows** you how to serve in tennis –you try it.
Verbal	Your teacher **tells** you to straighten your legs in a cartwheel
Manual	Your teacher moves your hand to hold the javelin with the correct grip.

Technological developments

- Technology applied to physical activity has played an important role both in training and competition. This is evident in a variety of ways that range from the creation of new sports facilities, the equipment used, officiating, safety, analysis and training technology.



Technological developments

Technology has affected physical activity at all levels from low level recreational activities to high level competitive sports e.g. bike helmets, walking boots. (recreational) – ski suits for ski racing (competitive).

If technology can enhance performance in competitive terms, then that technology should be available to all:

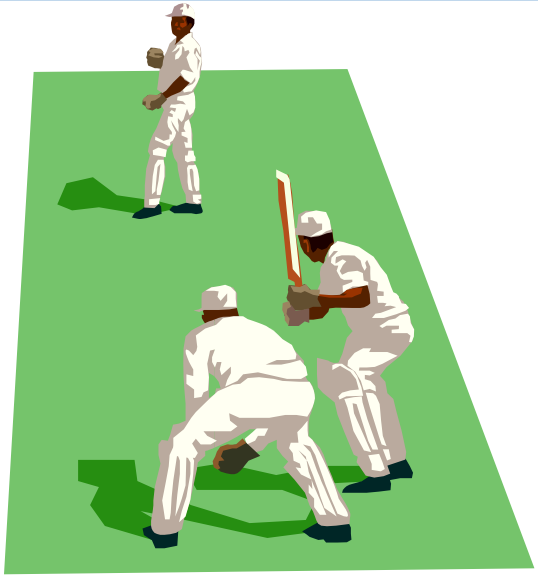
(the application of technology to sports equipment is by no means universal). There are implications here in terms of the costs of technological development and the costs of the purchases of these new developments.

Technological developments

Equipment

Many hockey sticks are now made of composite materials making them lighter and stronger. Specialist shoes have been designed to meet the demands of playing on astroturf. Goal keeping equipment is now made of a foam based material which gives keepers greater protection as well as giving them more power in clearing the ball

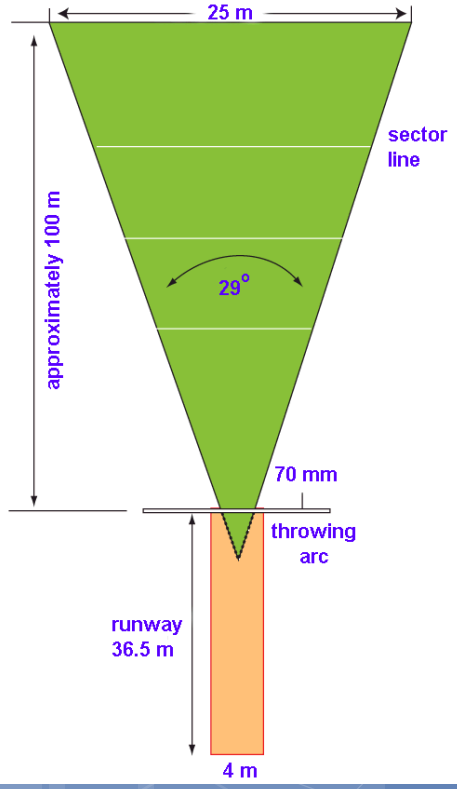
Cricket bats are now made of softer wood so that less time is spent on knocking them in and they play well straight away. However, as Andy Flintoff discovered in the summer the bats are prone to breaking more easily!



Technological developments

Equipment

Racket technology developments have enabled rackets to become lighter and more powerful. Due to advances in racket production tennis balls are now softer to counteract the power that can be produced from the racket.



Javelin technology was so successful when the Nemeth javelin was invented that male athletes would potentially be capable of throwing over 100m. The Nemeth Javelin was eventually stopped from being used as officials feared that the Javelin would travel so far that the current throwing area would not be long enough and could be dangerous.

Officiating

Video footage has taken officiating to the extreme with camera angles and positions being used to assist sports officials in making crucial decisions in a variety of ways.

Examples:

- Third umpire in *cricket* (run outs, boundary scores, catches)
- Running events in *athletics* (false starts, photo finishes, split times, instant replays)
- Assistant referee in *Rugby* (players or balls in to touch, try scored)
- *Tennis* (service line calls using Hawkeye)

Technological developments

Clothing

Clothing and footwear for many sports has taken a giant step forward in the last 10 years or more, having been designed to enhance performance and raise standards.

Shark suits in Swimming

All in one running suit

Cycle helmet

Latest England Rugby jersey

Technological developments

FACILITIES

The application of technology in sport facility design has brought about real changes in terms of athlete use, spectator comfort and recreational and health aspects.

There have been many developments made with facilities and playing areas to help improve performance, safety and have helped to develop sports in terms of the skills used and the development of tactics.

- Sports stadiums – retractable roofs – all seated.
- Artificial surface – all weather – Hockey (sand based and water based surface) and Athletics in particular have benefited – providing 'time' bounce and speed for hockey and fast tracks for athletics.
- Floodlights
- Gymnastic Pits (safer landings)

Technological developments

Specialist sprung floors for gymnastics

- Multi purpose squash courts – with sliding dividers
- Glass squash courts – better viewing
- Artificial ski slopes
- Surfing simulator (wave production)
- Fitness suites – highly technical machines which can be personalised
- Velodromes (cycling) – Manchester and Newport
- Landing Areas for Athletics
- Different surfaces for Tennis

Technological developments

Technological developments

Technological developments